S
333.91
Y2R
NO. 55 2006
1

YELLOWSTONE RIVER COMPACT COMMISSION

WYOMING **MONTANA** **NORTH DAKOTA**

STATE PUBLICATIONS COLLECTION
OCT 1 8 2007
MONTANA ST[illegible]IBRARY
1515 E. 6th AVE
HELENA, MONTANA 59620

FIFTY-FIFTH ANNUAL REPORT
2006

Montana State Library
3 0864 1004 1313 0

Yellowstone River

Compact Commission

Fifty-Fifth Annual Report

2006

Contents

Minutes of April 13, 2006 v
Minutes of December 6, 2006 ix
Attachment A—Letter from the Governor of Montana Appointing Mary Sexton as the Acting Yellowstone River Compact Commissioner xx
Attachment B—Letter from Jack Stults, Commissioner for Montana (Montana's Call for Water) xxi
Attachment C—Letter from Patrick Tyrrell, Commissioner for Wyoming (Wyoming's Response) xxxiii
Attachment D—Letter from Mary Sexton, Acting Commissioner for Montana (Montana's Reply to Wyoming) xxxvi
Attachment E—Yellowstone River Compact Commission Resolution (Resolution Proposed by Montana) xxxviii
Attachment F—Letter from Montana and Wyoming Commissioners to Senator Max Baucus (Montana) in Support of USGS Tongue River Monitoring Network xli
Appended Minutes, Technical Committee — April 12, 2006 xlii
Appended Minutes, Technical Committee — December 5, 2006 xlvi
General Report 1
Cost of Operation and Budget 1
Streamflow-Gaging Station Operation 1
Diversions 2
Reservoir Contents 2
Reservoirs Completed after January 1, 1950 2
Reservoirs Existing on January 1, 1950 2
Annual Contents of Reservoirs 2
Summary of Discharge for Yellowstone River Compact Streamflow-Gaging Stations 3
06208500 Clarks Fork Yellowstone River at Edgar, Mont 3
06294000 Little Bighorn River near Hardin, Mont 6
06294500 Bighorn River above Tullock Creek, near Bighorn, Mont 8
06308500 Tongue River at Miles City, Mont 12
06326500 Powder River near Locate, Mont 15
Month-End Contents for Yellowstone River Compact Reservoirs[1] Completed after January 1, 1950 18
06258900 Boysen Reservoir, Wyo 18
06260300 Anchor Reservoir, Wyo 19
06286400 Bighorn Lake near St. Xavier, Mont 20
Month-End Contents for Yellowstone River Compact Reservoirs[1] Existing on January 1, 1950 21
Water-Year-End Contents for Yellowstone River Compact Reservoirs[1] or Lakes 22
Rules and Regulations for Administration of the Yellowstone River Compact 23
Rules for the Resolution of Disputes over the Administration of the Yellowstone River Compact 27
Rules for Adjudicating Water Rights on Interstate Ditches 30
Claim Form for Interstate Ditches 35
Conversion Table 39

Figures

Map showing locations of Yellowstone River Compact streamflow-gaging and reservoir-content stations.....in back
1–4. Graphs showing:
1. Streamflow data for the Clarks Fork Yellowstone River at Edgar, Mont. (06208500), minus diversions to Whitehorse Canal, water years 1922–2006: *A*, Statistical distribution of monthly and annual streamflow; *B*, Annual departure from the mean annual streamflow.....5
2. Streamflow data for Bighorn River above Tullock Creek, near Bighorn, Mont. (06294500), minus Little Bighorn River near Hardin, Mont. (0694000); adjusted for change in contents in Bighorn Lake, water years 1965–2006: *A*, Statistical distribution of monthly and annual streamflow; *B*, Annual departure from the mean annual streamflow.....11
3. Streamflow data for the Tongue River at Miles City, Mont. (06308500), water years 1939–2006: *A*, Statistical distribution of monthly and annual streamflow; *B*, Annual departure from the mean annual streamflow.....14
4. Streamflow data for the Powder River near Locate, Mont. (06326500), water years 1939–2006: *A*, Statistical distribution of monthly and annual streamflow; *B*, Annual departure from the mean annual streamflow.....17

Tables

1. Daily mean discharge for Clarks Fork Yellowstone River at Edgar, Mont., minus diversions to Whitehorse Canal, October 2005 to September 2006.....3
2. Daily mean discharge for Little Bighorn River near Hardin, Mont., October 2005 to September 2006.....6
3. Daily mean discharge for Bighorn River above Tullock Creek, near Bighorn, Mont., October 2005 to September 2006.....8
4. Daily mean discharge for Tongue River at Miles City, Mont., October 2005 to September 2006.....12
5. Daily mean discharge for Powder River near Locate, Mont., October 2005 to September 2006.....15
6. Month-end contents for Boysen Reservoir, Wyo.....18
7. Month-end contents for Anchor Reservoir, Wyo.....19
8. Month-end contents for Bighorn Lake, Mont.....20
9. Month-end contents for Yellowstone River Compact reservoirs[1] existing on January 1, 1950.....21
10. Water-year-end contents for Yellowstone River Compact reservoirs[1] or lakes.....22

[1]Wyoming disagrees with the term "Compact reservoirs" as used throughout this annual report. Wyoming's acceptance of this annual report should not be construed as Wyoming's acceptance of the use of that term.

YELLOWSTONE RIVER COMPACT COMMISSION
DENVER FEDERAL CENTER, BUILDING 53, ROOM F-1200
LAKEWOOD, COLORADO 80225

Honorable David Freudenthal
Governor of the State of Wyoming
Cheyenne, Wyoming 82002

Honorable Brian Schweitzer
Governor of the State of Montana
Helena, Montana 59620

Honorable John Hoeven
Governor of the State of North Dakota
Bismarck, North Dakota 58501

Dear Governors:

Pursuant to Article III of the Yellowstone River Compact, the Commission submits the following fifty-fifth annual report of activities for the period ending September 30, 2006.

Minutes of April 13, 2006

Members of the Yellowstone River Compact Commission convened the first of two meetings in 2006 on April 13 at 8:30 a.m. in Thermopolis, Wyoming. In attendance were Mr. William Horak, U.S. Geological Survey, Chairman and Federal Representative; Mr. Jack Stults, Administrator, Water Resources Division, Montana Department of Natural Resources and Conservation and Commissioner for Montana; and Mr. Patrick Tyrrell, Wyoming State Engineer and Commissioner for Wyoming. Also in attendance were Ms. Sue Lowry, Mr. Loren Smith, and Mr. Bill Knapp, Wyoming State Engineer's Office; Mr. David Willms, Wyoming Attorney General's Office; Mr. Keith Kerbel and Mr. Chuck Dalby, Montana Department of Natural Resources and Conservation; Ms. Sarah Bond, Montana Attorney General's Office; Mr. Art Compton, Montana Department of Environmental Quality; Mr. Art Hayes, Jr., Tongue River Water Users Association; Mr. Jason Whiteman, Water Resources Department, Northern Cheyenne Tribe; Mr. Doug Davis, Bureau of Indian Affairs; and Mr. Wayne Berkas, Mr. Myron Brooks, and Mr. Kirk Miller, U.S. Geological Survey.

Mr. Berkas reported that costs for the program of streamflow-data collection and preparation of the annual report are $80,000 for Federal fiscal year 2007 and are expected to be $84,000 or less for fiscal year 2008. The budget was approved by the Commissioners.

Mr. Berkas passed out the 2005 Yellowstone River Compact Commission report to Mr. Stults and Mr. Tyrrell (the two Commissioners) and to Mr. Horak (the Chairman). Mr. Berkas announced that the report has been printed and would be mailed to all on the mailing list. Anyone wishing a copy or additional copies should contact Mr. Berkas.

Mr. Dalby asked why reservoirs noted in the Compact report are not included on the map in the report. Mr. Berkas thanked Mr. Dalby for discovering this discrepancy and said that all reservoirs listed in the report will be located on the map. Also, the operators of the reservoirs will be identified in the report.

Mr. Berkas will revise the table listing the reservoirs and revise the map and pass this to the Technical Committee. The Technical Committee will approve the revisions before the next Yellowstone River Compact Committee meeting in the fall of 2006.

Mr. Stults noted that the reservoir table listed a post-1950 water right of 11,070 acre-feet for the Tongue River Reservoir. This is incorrect because there is no post-1950 water in the reservoir. Although the reservoir was enlarged between 1994 and 1997, and it was physically enlarged to store 11,070 more acre-feet of water, the additional water carries a priority date of the reserved water rights of the Northern Cheyenne Tribe. The Tribe and State settled the Tribe's claims, and the settlement was ratified by the U.S. Congress. Thus, the additional water stored in the reservoir has a water right decreed to the Northern Cheyenne Tribe with a date equivalent to the establishment of the Northern Cheyenne Reservation, and that water right predates 1950 (1884 or 1901) (See Art. II a. 2.b of the Northern Cheyenne State of Montana Reserved Water Rights Compact). Mr. Berkas said that the correction would be made to reflect that the total water right of 79,070 acre-feet is a pre-1950 water right.

The Commissioners adopted the 2005 Yellowstone River Compact Commission report.

Ms. Lowry provided a summary of the April 12, 2006, meeting of the Technical Committee (minutes posted on the Web page). The Committee noted that the snow pack for 2006 is less than average, similar to the snow pack in 2005. Last year, above-normal rain and snow occurring after April helped streamflow conditions in the Yellowstone River basin tributaries to be near average for the 2005 water year. The Bureau of Reclamation projects that Buffalo Bill, Boysen, and Bull Lake Reservoirs will fill in 2006.

Mr. Tyrrell stated that Wyoming State Engineer's Office received $200,000 from the State legislature for a joint water-use study with Montana, with $100,000 for internal use and $100,000 to partner with Montana to study water use. The two-State study would begin after July 2007 if Montana is successful in obtaining their cost-share portion. The objective would be to obtain information in the Yellowstone River basin that helps both States better manage water operations in the river basin. The study would be done jointly between Wyoming and Montana. Wyoming and Montana will begin scoping the study between now and the fall Compact meeting, with the goal of presenting a draft scope to the Technical Committee for review prior to the fall Compact Commission meeting. The scoping effort and the study is not a Commission-directed activity. If something comes out of the study that provides a tool for better Compact administration, the States will submit it to the Commission.

Mr. Stults replied that Montana has a request for the 2007 legislative session for about $125,000, and has received positive feedback from the Governor's Office. Montana would like to see work focus on identifying the pre-January-1950 water uses in both States.

Mr. Stults stated that Montana's Governor's Drought Advisory Committee continues to meet on an ongoing basis to be prepared for drought response. Although drought conditions continue to improve, Montana feels that after 6 years of drought, conditions are tenuous and the State can slip back into drought fairly quickly. The Committee provides information that is disseminated across the State so that proactive actions can be taken to mitigate the effects of drought. The actions include water management and/or economic relief for affected parties. Montana has learned that the collaborative effort of managing water, scheduling diversions, and understanding return-flow regimes really works.

Mr. Tyrrell stated that Wyoming also has experienced drought. The difficulty is that sometimes there is a surplus of water in some areas and a deficit in others. Mr. Tyrrell also announced that Wyoming will fill the State Climatologist position in May 2006.

Mr. Stults announced that Montana has established a State Climatologist, and that person is Dr. Don Potts at the University of Montana College of Forestry and Conservation.

Mr. Stults announced that Montana had a request for more than 20 Water Court decrees to be enforced and many were enforced last year. These decrees are a result of the ongoing adjudication process. Many water managers are excited about the new Water Court decrees being enforceable. Historic District Court decrees, including the Miles City decree on the Tongue River, continue to be enforced as they always have been, by court-appointed Commissioners for those streams.

Mr. Tyrrell announced that Wyoming recently funded a weather-modification study for about $8.8 million. The study began in 2005 and is being run through the Water Development Commission under permits issued by the State Engineer. The Wyoming State Engineer's Office permits cloud seeding. The study will last for 5 years. Wyoming is hoping this study will lead to some additional water for the State to administer.

Coal-bed methane discussions were covered during the Technical Committee meeting held on April 12, 2006, (minutes appended) and Ms. Lowry provided a summary of those discussions. The main topics were:

1. The distribution of a draft executive summary by the Montana Bureau of Mines and Geology that discussed a ground-water monitoring network near the Montana-Wyoming State line.

2. The amount of coal-bed methane development in Wyoming. Wyoming provided a table listing the coal-bed methane disposal reservoirs in the Tongue, Powder, and Little Powder River drainages where applications have been received and where permits have been issued. Wyoming is requiring all reservoirs to be permitted, even those being used for activities other than coal-bed methane development. There are currently 2,481 permits and the average volume stored in each of the permitted reservoirs is about 12.5 acre-feet. Wyoming also presented a graph showing the number of coal-bed methane well applications by month. There have been 36,543 coal-bed methane well applications throughout Wyoming received from January 1997 to March 2006. Wells have not been drilled for all permits.

3. The Wyoming legislature established a Coal-Bed Methane Task Force during the 2006 legislative session. The task force is charged with reviewing current statutes and regulations and produced-water management alternatives, including disposal, and will prepare a report to the legislature by December 6, 2006, and a final report by October 1, 2007. The legislature also appropriated $500,000 to the Water Development Commission to explore the feasibility of running a pipeline for coal-bed methane produced water from areas where coal-bed methane water is produced in the Powder River drainage to water-short areas outside the Yellowstone River drainage (the Platte River). This feasibility study will be completed within 2 years.

Mr. Stults said that Montana is concerned about the feasibility study to divert water out of the Yellowstone River drainage basin because Article 10 of the Yellowstone River Compact prohibits the diversion of water out of the Yellowstone River drainage basin without the unanimous consent of the Signatory States (Montana, North Dakota, and Wyoming). Montana strongly feels the Yellowstone River Compact Commission must be fully informed as the proposal is developed. Language in Article 10 of the Compact says "no water shall be diverted from the Yellowstone River basin," and nowhere in the Compact is there a distinction made between ground water and surface water. Montana believes that all water, including ground water, falls under the Compact. Montana is comfortable with monitoring the proceedings of the study with the topic being on the agenda of the fall Compact Commission meeting.

Mr. Tyrrell replied that Wyoming feels that there is a window of opportunity under the Compact to look at the feasibility of transporting coal-bed methane (CBM) produced water out of the Yellowstone River drainage. Wyoming feels that the Yellowstone River Compact is a surface-water instrument and has no decision-making authority related to coal-bed methane produced water issues. Mr. Tyrrell explained that the feasibility study would look at numerous issues, including water treatment options, pipeline design, pumping costs, and potential ground-water connectivity.

Ms. Bond asked Wyoming what Wyoming Water Development Commission projects are in the Yellowstone River drainage?

Ms. Lowry replied that there are about 64 projects in Wyoming and about 25 percent are in the Yellowstone River drainage. A project that may be of interest to the Yellowstone River Compact Commission is a project in the Middle Fork Powder River drainage. Last November there were two applications to the Water Development Commission for storage projects on the Middle Fork, but these were withdrawn in favor of an application for a watershed study that focuses on irrigation scheduling.

Ms. Bond asked if the Middle Fork Powder River reservoir project had a pre-1950 development permit and if Wyoming considered that water right still viable after the project had been withdrawn in favor of a watershed study.

Mr. Tyrrell replied that the pre-1950 water right was still active because it is still on file in the Wyoming State Engineer's Office.

After questions regarding the Technical Committee's summary of coal-bed methane discussions ceased, Mr. Stults stated that Montana feels that coal-bed methane discussions pertain to Compact discussions because water is a unitary resource. Coal-bed methane development has the potential of manipulating large quantities of water. Montana believes that science shows that there are connections between ground water and surface water in some coal aquifers being de-pressurized and developed for coal-bed methane production within the basin, and that coal-bed methane development also affects the quality of ground water and surface water. Although water quality is not explicitly referenced within the Compact, Montana believes the

quality of water relates to the beneficial use of the water, and beneficial use is inherent within the fundamental principal of prior appropriation doctrine and is the foundation for the Yellowstone River Compact. Mr. Stults stated that a primary component of beneficial use is to have water with a quality to support the use.

Mr. Whiteman stated that the Northern Cheyenne Tribe has a first-right water right within the Tongue River drainage, and they are concerned that coal-bed methane development may alter the beneficial use of their water right. Thus, the Northern Cheyenne Tribe feels that water quality is an important topic for the Commission to discuss.

Mr. Stults reported that Montana passed a major piece of legislation (House Bill 22) to complete the adjudication of all water rights within the State. All basins are to have final decrees within 15 years. Montana Department of Natural Resources and Conservation (DNRC) is required to complete the work within 10 years. This work is being funded by the owners of the water rights. Currently, the DNRC is ahead of schedule in their work at processing water rights. Generally, the public is fully supporting the effort.

Mr. Kerbel added that the Billings DNRC office has concentrated their efforts on the Bighorn River. Currently, the Bighorn River adjudication is about 99 percent complete. Billings DNRC has examined 28 percent of the Tongue River Basin. The Powder River is fully adjudicated.

Mr. Kerbel reported that some claims with the Federal government under the Crow Compact have been resolved. There is hope that there may be some Federal legislation drafted to ratify the Compact.

Mr. Stults reported that DNRC also is working on compacts with other Tribes and the U.S. Forest Service. The compact with the U.S. Forest Service will establish instream-flow rights under the State reserve rights with a priority date of the date of compact.

Mr. Horak reported that both Commissioners have received a draft of the Yellowstone River Compact Commission Web site, and hopefully all the suggestions for improvement have been made. The USGS will soon have the 2005 Yellowstone River Compact Commission annual report available on the Web site, and all past reports will be scanned and added to the Web site. There will be two map options to access data: Google Earth and a static map. The static map will be available because Google Earth consumes a tremendous amount of resources and some users do not have high-speed Internet access. All active USGS sites within the Yellowstone River drainage will be displayed on the maps. In the future, other agencies' (State and local) data will be available through this site.

Mr. Whiteman reported that the Northern Cheyenne Tribe has a water-quality standard pending approval with EPA.

Mr. Compton reported that Montana Department of Environmental Quality has met with the Northern Cheyenne Tribe regarding minor differences between the State and Tribal standards. There remain a few differences that complicate permitting.

Mr. Hayes said that the water being pumped from coal aquifers to produce methane is "old water" that took a long time to get to its present location. He wondered how that water would be replaced and would like to see a study that identified the effect of coal-bed methane production on the reduction of other natural discharge points (such as springs) and the overall reduction of ground-water levels. Also, he is interested in restoring ground water to levels observed before coal-bed methane production.

Mr. Horak stated that at this time the Compact does not provide a clear mandate, nor does the Commission have the resources, to study effects of coal-bed methane development on ground water. Wyoming feels that the Technical Committee should continue to monitor and review coal-bed methane issues in the basin, but no extended agenda time for the full Commission should be dedicated to coal-bed methane or water-quality discussions.

Mr. Stults replied that large projects in the drainage basin that extract ground water may eventually affect surface-water characteristics, and thus should not be ignored. The Commission should not miss the opportunity to include coal-bed methane development and ground-water projects in their discussions because these projects are important in the overall budget and water management in the basin. The Commission has the Federal and State legal authority to understand and manage water resources in the Yellowstone River drainage basin.

The Commissioners agreed to have the next Yellowstone River Compact Commission meeting in Billings, in the morning of December 6, 2006. The Technical Committee would meet in the afternoon of December 5, 2006.

Minutes of December 6, 2006

Members of the Yellowstone River Compact Commission convened the second of two meetings in 2006 on December 6 at 8:30 a.m. in Billings, Montana. In attendance were Mr. William Horak, U.S. Geological Survey (USGS), Chairman and Federal Representative; Ms. Mary Sexton, Director, Montana Department of Natural Resources and Conservation (DNRC) and Acting Commissioner for Montana; and Mr. Patrick Tyrrell, Wyoming State Engineer and Commissioner for Wyoming. Also in attendance were Ms. Sue Lowry, Ms. Jodee Pring, Mr. Carmine LoGuidice, and Mr. Loren Smith, Wyoming State Engineer's Office; Mr. David Willms, Wyoming Attorney General's Office; Mr. Rich Moy, Mr. John Tubbs, Mr. Chuck Dalby, Mr. Keith Kerbel, Mr. Jim Robinson, and Mr. Kevin Smith, DNRC; Ms. Sarah Bond, Montana Department of Justice; Mr. Art Compton, Montana Department of Environmental Quality; Mr. Andy Brummond and Mr. Jim Darling, Montana Fish, Wildlife and Parks; Mr. Doug Haacke, Trout Unlimited; Mr. Tim Felchle, Mr. Gordon Aycock, Mr. Patrick Erger, and Mr. Lenny Duberstein, Bureau of Reclamation; Mr. Joe Fox, Jr., Mr. Allen Clubfoot, and Ms. Shanny Spang Gion, Northern Cheyenne Tribe; Ms. Jill Morrison, Powder River Basin Resource Council; Mr. Mark Fix, Northern Plains Resource Council; Mr. Roger Muggli, T&Y Irrigation District; Mr. Art Hayes, Jr., Tongue River Water Users Association; Ms. Susan Gilbertz, Montana State University, Billings; Mr. John Murdock, Department of the Interior Solicitor's Office; Ms. Rose Rennie, Office of the Solicitor; and Mr. Kirk Miller, Mr. Myron Brooks, Mr. Robert Davis, and Mr. Wayne Berkas, U.S. Geological Survey.

Mr. Horak called the meeting to order and announced that two individuals will be working as reporters or transcribers for the meeting. Ms. Kristin Coil will record the meeting for the Montana delegation, and Ms. Gabrielle Patterson will record the meeting for the USGS, who will prepare the minutes for the meeting.

Mr. Horak presented the agenda and asked if there were any additions. There were no additions and both Commissioners accepted the agenda.

Ms. Sexton presented a letter to the Chairman (Mr. Horak) and the Wyoming Commissioner (Mr. Tyrrell) from the Montana Governor, Mr. Brian Schweitzer, appointing Ms. Mary Sexton as the Acting Commissioner from Montana to the Yellowstone River Compact Commission (Attachment A). Ms. Sexton stated that the past Montana Commissioner, Mr. Jack Stults, resigned in July of this year. She was appointed the Acting Commissioner for Montana and she will remain the Acting Commissioner until a Commissioner is appointed by Governor Schweitzer.

Mr. Horak asked that the minutes for the April 13, 2006, Yellowstone River Compact Commission meeting be accepted and approved. State Commissioners approved the minutes.

Mr. Berkas presented budget information for the program of streamflow-data collection and preparation of the annual report. The program cost was $76,000 for Federal fiscal year 2006 and will be $80,000 for fiscal year 2007. One-fourth of the cost is provided by the State of Wyoming, one-fourth by the State of Montana, and one-half by the U.S. Geological Survey through the Cooperative Water Program. Cost estimates for 2008, 2009, and 2010 are $84,000, $88,200, and $92,600, respectively. These estimates are based on an approximate 5-percent inflation factor per year.

The budget was accepted by both Commissioners.

Mr. Berkas reported that streamflows during water year 2006 were below normal at all streamflow sites monitored by the Commission. Streamflow at Clarks Fork Yellowstone River at Edgar was 79 percent of average, and ranked eleventh lowest in 68 years. The streamflow at Bighorn River near Bighorn (minus flow of the Little Bighorn River and adjusted for change of contents in Bighorn Lake) was 55 percent of average and ranked tenth lowest of 40 years. The streamflow at Tongue River at Miles City was 37 percent of average and ranked fifth lowest in 63 years. The streamflow at Powder River near Locate was 47 percent of average and ranked ninth lowest in 68 years. Total adjusted streamflow of the four rivers in water year 2006 was 2,237,000 acre-feet, compared to 2,950,000 acre-feet in water year 2005 and 1,621,000 acre-feet in water year 2004.

Reservoir storage decreased in all the reservoirs historically monitored for the Commission (Bighorn Lake, Boysen Lake, Anchor Reservoir, Bull Lake, Pilot Butte Reservoir, Buffalo Bill Reservoir, and Tongue River Reservoir). The contents and the amounts of decrease are listed in the annual report. The total usable contents of these reservoirs at the end of water year 2006 was 1,689,100 acre-feet, compared to 2,149,000 acre-feet in water year 2005 and 1,739,800 acre-feet in water year 2004. Storage in other reservoirs in the four river basins at the end of water year 2006 was 208,860 acre-feet, a decrease of 78,860 acre feet from the end of water year 2005. The total usable contents of these other reservoirs are listed in the annual report.

Mr. Moy stated that the annual report contains data for measured flows and does not account for depletions, such as water consumed by irrigation. He recommended that the annual report include a statement that the total volume of water flowing from the four rivers does not account for depletions. Mr. Berkas replied that a statement to that effect will be included in the annual report.

Mr. Tyrrell suggested that the Yellowstone River Technical Committee look at headwater gages that are upstream from most diversions in the basin to determine if the lack of streamflow is due to climatic effects or water-use effects. After discussion, Mr. Tyrrell moved that, at the April 2007 meeting, the Yellowstone River Technical Committee look at available gage data in the four drainages (Clarks Fork Yellowstone River, Bighorn River, Tongue River, and Powder River) and identify an indicator gage in each drainage. These gages would be used to help determine climatic effects on the water supply. Ms. Sexton seconded the motion, and the motion passed.

Mr. Moy reported that the Yellowstone River Technical Committee met yesterday (December 5, 2006). Montana and Wyoming are experiencing severe drought conditions and there are impacts to both States. The degree to which each State is impacted is still to be determined. The minutes for the Technical Committee meeting are posted on the Yellowstone River Compact Commission Web page at *http://cr.water.usgs.gov/YRCC/index.html*.

Mr. Tyrrell reported on water-year administration highlights in Wyoming. In the Tongue River basin, water rights junior to 1883 were regulated on Little Goose Creek. Big Goose Creek was regulated to 1885 after June 27 and Sheridan was on water restrictions by mid-July. Reservoir water was released into Big Goose and Little Goose Creeks starting in mid-June and continued throughout the summer. Wolf Creek was regulated to 1883 after July 10. Little Tongue River was regulated to 1883 and Smith Creek was regulated to 1881 through the summer. By late August, only instream stock use was allowed on these rivers and creeks. In early September, flows in the Tongue River were regulated to 1891 on the reach above the Tongue River ditch at Ranchester.

This year (2006), Division 2 Superintendent Mike Whitaker ordered the construction of measuring devices for all diversions in the Tongue River. These measuring devices must be in place prior to the 2007 irrigation season.

In the Powder River drainage, water releases from Lake DeSmet began on May 19. The Powder River was regulated to 1894 on June 23. Piney Creek and lower Clear Creek were regulated to 1884 on June 30, and reservoir releases began from Willow Park and Kearney Lake Reservoirs. On Crazy Woman Creek, Muddy Guard Reservoir began releases on May 17, and by June 23 only the number two court-decreed appropriation for 17 ft^3/s could be satisfied. Rock Creek and Clear Creek were regulated to 1885 on June 2. North Fork Powder River was regulated to 1885 on June 2, and Dull Knife Reservoir began releases on the next day. Once the streams were regulated, they continued to be regulated throughout the irrigation season.

Mr. Loren Smith added that all the major tributaries to the Bighorn River went into regulation. Shell Creek went into territorial pre-1890 rights after the middle of July. The Nowood River system was regulated to about 1900. This system normally does not get regulated. Tribal reserve rights (1868) could not be satisfied on Owl Creek. Gooseberry Creek went dry at the headwaters gage used to regulate the creek. The Greybull River system was regulated to territorial water rights from the end of June to the end of September.

Ms. Sexton reported that Montana made a call for water to the Wyoming State Engineer under the Yellowstone River Compact on July 28, 2006, regarding the Tongue and Powder Rivers (Attachments B, C, and D—call letter and responses). The situation on the Tongue River was dire and Montana was unable to fill the Tongue River Reservoir this year. Montana's biggest concern was their inability to fulfill all pre-1950 water rights.

Montana also was concerned about flow in the Powder River. The Powder River at Moorhead, Montana (Montana-Wyoming border) essentially went dry on July 25, 2006, and the average flow for that date is 215 ft^3/s.

This was the second time that Montana made a call for water on Wyoming. A previous call was made in 2004.

Mr. Kevin Smith reported that Montana was about 6,000 acre-feet short of filling the Tongue River Reservoir this year. The peak storage was about 73,400 acre-feet. Contract deliveries from the reservoir began in the third week of June and ended the first week of September. Montana purchased water from the Northern Cheyenne Tribe (held in the reservoir) to maintain base flow for aquatic life in the river through September until precipitation occurred.

Mr. Kerbel said that Montana partially satisfied two water rights (Brown L&C Company and T&Y Irrigation District) that go back to 1886 on the Tongue River. If it wasn't for these two users not taking their full right, the reservoir would not have stored as much water, and most users would not have gotten any contract water.

On the Powder River, there was no supply at the State line for most of the summer. There was no flow at the State line from July 28 to September 1. Much of the Powder River irrigation is serviced by high-volume pumps and water supply was limited by the end of June.

Ms. Lowry asked if the water rights for the high-volume pumps were for a set point on the river, or for acres of land that the pumps serve. Mr. Kerbel replied that generally the landowner had one pump that they move from field to field using multiple locations in the river. The water right describes the land to be irrigated in addition to withdrawal points and flow rates.

Ms. Lowry asked if the Powder River has been adjudicated. Mr. Kerbel replied the Powder River has been adjudicated and its status is a temporary final decree.

Mr. Horak asked Ms. Sexton to begin the discussion on Montana's Proposed Resolution on Compact Administration Requirements by providing background information.

Ms. Sexton commented that the many years of drought in the basin has brought about discussion and interpretation of the Compact, particularly regarding the pre-1950 rights. The call that Montana made on Wyoming requested the curtailment of pre-1950 diversions and storage to the extent required by the Compact. The rationale for the call was based on the drought situation in Montana and Montana's interpretation of the Compact. Additionally, Montana is concerned about the disposal of coal-bed methane produced water (within and outside the basin) and the effects of coal-bed methane production on the ground-water system. These two issues have been discussed in the past by the Commissioners. Given the conditions in the basin, Montana would like a clear interpretation of the Compact regarding the pre-1950 rights and full apportionment, and Article 10 and coal-bed methane produced water.

Montana presented a resolution (Attachment E) addressing the two issues. Montana feels that now is the time to try to find some common ground and some clear determination and interpretation of where the two States are with these two issues.

Mr. Tyrrell replied that the call placed on Wyoming by Montana and the corresponding letters harken back differences the two States have had in interpreting pre-1950 rights since 2004, and probably earlier. Mr. Tyrrell became aware of the resolution about a week prior to the meeting. The resolution is a product of Montana, not a product of negotiations between the two Commissioners or the two States. Mr. Tyrrell expressed concern that the resolution intends to interpret or amend the Compact. He stated that the resolution brings ground water into the Compact. Wyoming's position is that the Compact clearly does not include ground water. He also stated that Wyoming clearly disagrees with Montana's interpretation of the pre-1950 water-right issue in the Compact.

Wyoming feels it is not appropriate for the Commission, as an institution, to engage in what would be an interpretation of the Compact by accepting this resolution. Thus, Wyoming is not interested in dealing with the resolution at the meeting.

Ms. Bond asked for Wyoming's position on ground water within the Compact. Mr. Tyrrell replied that Wyoming is not ready to state a position. There is a discussion of ground water in Montana's resolution and Wyoming feels that a discussion of ground water is outside the scope of the Yellowstone River Compact. Wyoming received the resolution only a week ago; Wyoming is not prepared to make any additional statements.

Ms. Bond commented that she did not know if the Commission would be willing to make a statement whether this kind of resolution is appropriate, or that Compact interpretation is appropriate for the Commission to act upon, or whether the Commission has a position with respect to what she understands is Wyoming's position (that it is not appropriate for the Commission to adopt a resolution interpreting the Compact). Ms. Bond asked if she articulated Wyoming's position correctly, such that adopting the resolution would not be appropriate for the Commission.

Mr. Tyrrell replied that Wyoming has been looking at the resolution for about 4 working days. Wyoming feels that a resolution put before the Commission should be developed with some study and work by both States. The appropriateness of the resolution should be determined from meetings prior to the Compact Commission meeting so that when the Commission sits down, there are no questions as to whether the resolution is appropriate for the Commission to consider. No discussion has occurred in this case.

Ms. Sexton replied that she was under the impression that when resolutions are presented, they come through the Chairman to be presented at the meeting. She sent the resolution to the Chairman, expecting it to be distributed with the minutes and agenda well in advance of the Commission meeting. She thought that a resolution was a means to begin discussing difficult issues. The Commission meeting seems to be the appropriate venue to discuss the issues described in the resolution; thus, she sent the resolution to the Chairman thinking the resolution would be distributed with the agenda.

Mr. Horak replied that he did not distribute the resolution with the agenda because he felt that the Wyoming Commissioner would not adopt the resolution without considerable discussion, if in fact, he was ever ready to adopt it. Therefore, because the resolution is not a product of a developmental process within the Commission, particularly between the two State Commissioners, Mr. Horak felt it inappropriate to distribute the resolution as Chairman of the Commission without some extensive explanation of the background and purpose of the resolution. Mr. Horak felt that Montana should offer the background and explanation to accompany the proposed resolution.

Ms. Sexton asked how else an issue should be brought forward for public discussion in a public process.

Mr. Horak replied if the resolution had been the product of a deliberative process among Commissioners, he would not have discomfort in distributing it, without considerable explanation and background, along with the agenda under his identity as the Federal member and the Chairperson. Given that the resolution was presented without that dialogue and developmental process, and because the resolution might well represent the perspective of the Montana Commissioner and likely not the Wyoming Commissioner, it was not appropriate for the Chairman to distribute the resolution. In a circumstance where a proposed resolution isn't characterized by that evident conflict of opinion, he probably would have done as requested and distributed the resolution. However, he deemed this to be quite a different circumstance.

Ms. Sexton asked if the issues that are brought forward to the Commission are issues that are agreed upon beforehand.

Mr. Horak replied that this issue has a long history in this Commission. The position Montana put forth is a position that the Wyoming Commissioner would not embrace. Also, the resolution calls for the signatures of both Commissioners on the first distribution.

Ms. Sexton stated that certainly a resolution can be tabled through a formal process. If there is an issue that we do not agree on, how do we move through a process so there is open and public deliberation, so that we clearly understand our positions? How do we move forward in finding some common ground? It is suggested that common ground be found before it is brought to the Commission, because the Commission does not particularly want to discuss something upon which all parties might not agree. This creates a rather awkward situation, where issues with no common agreement cannot be brought forward to the Commission for discussion. How does the Commission discuss the more difficult issues in a deliberative and clearly public and open process?

Mr. Horak asked for Mr. Tyrrell's thoughts on Ms. Sexton's comments.

Mr. Tyrrell replied that the Commission may be missing the role of this Commission in administering the Compact, versus the rights of the various signatories in this case—Montana and Wyoming—to disagree upon parts of the Compact, and interpreting parts of the Compact. Certainly the Commissioners can talk independently as parties over areas with which we disagree. Perhaps these discussions could be brought either to the Technical Committee meeting or to the Commissioners meeting.

Wyoming's point of view is that the proposed resolution is not an instrument of discussion. The resolution is a commitment to positions that we have disagreed upon relatively strenuously for 2 years.

Mr. Horak asked for comments from Ms. Sexton.

Ms. Sexton stated that she appreciated the explanation of procedures that were used in the past. She asked that Commissioners discuss how they move forward on difficult issues. The two Commissioners can call each other, but those discussions are not public. Because there is an open-meeting law in Montana, the discussion should take place in a public forum. Ms. Sexton requested that a future agenda item be a discussion of processes and procedures to discuss difficult issues in public.

Mr. Horak stated that the resolution issue was on the agenda.

Ms. Sexton replied that she was aware of that.

Mr. Horak asked for Mr. Tyrrell's thoughts on Ms. Sexton's comments.

Mr. Tyrrell replied that he wanted to draw the distinction between State-to-State discussions over difficult issues versus the role of the Commission. Commissioners in the past have had discussions independent from the Commission, and that should continue. The discussions between the States should be about the appropriateness of the content of the proposed resolution, not that we adopt the resolution. The Commission is designed to administer under the Compact, not to interpret it differently or to make a decision that could be construed as amending the Compact. If we have issues among the States and we want to get together and change the language, we could consider changes to the Compact. Then we will come back and hand it to Mr. Chairman and say, "here is the book under which we operate." But to do that as a Commission is troublesome.

Mr. Horak asked for further discussion from Ms. Sexton.

Ms. Sexton made a motion to move forward Montana's resolution as proposed for the December 6th meeting, and that the Northern Cheyenne Tribe be given an opportunity to comment on their position regarding this resolution.

Mr. Horak asked for a second on the motion. There was no second.

Ms. Sexton asked if there would be an opportunity to discuss the motion.

Mr. Horak replied that the Compact says that the Federal member (U.S. Geological Survey) only votes under circumstances of disagreements between the two State Commissioners, and the U.S. Geological Survey made a determination (codified in 1996) that they not vote. Rather, they developed a procedure for resolving conflict. In this circumstance, the vote will be one to one, causing the motion to fail for lack of a second and the two Commissioners would enter a dispute-resolution process.

Ms. Sexton replied that her understanding is because Mr. Horak cannot vote, the next option would be to pursue a formal dispute-resolution process.

Mr. Horak responded that Ms. Sexton was correct and that the Commission would invoke the rules for resolution of dispute, and that would begin with unfacilitated communication between the two Commissioners.

Mr. Tyrrell responded that he would reserve his position on dispute resolution because dispute-resolution procedures apply to administrating the Compact rather than interpreting the Compact. Nothing precludes Wyoming and Montana from continuing to discuss what may be something suitable to bring back to the Commission.

Ms. Sexton agreed that it might not be appropriate to use dispute-resolution procedures to resolve Compact interpretation matters.

Ms. Bond replied that Montana agrees that a legal interpretation issue would be inappropriate for the dispute-resolution rules, which provide for a facilitated mediator to make a decision to resolve impasse. It is beyond the scope and authority of the Signatory parties to allow a third party to step in and decide what the Compact means because that is the province of the legislatures of each State. Thus, Montana agrees with Wyoming's position that a legal interpretation would not be appropriate to send to dispute resolution.

Mr. Tyrrell agreed that congressional or other involvement is necessary to change the Compact.

Mr. Horak asked Mr. Tyrrell to brief the Commission on the Joint Water-Use study in Wyoming. Mr. Tyrrell stated that Wyoming received funding for a joint water-use study and they hoped that Montana will also find funding.

Ms. Sexton reported that Montana is presenting a proposal in the upcoming legislative session for funding a study in the Tongue and Powder River basins. Montana will have more news about this topic at the April meeting, as the legislative session will be over.

Ms. Pring updated the Commission about a weather modification project in Wyoming. The Wyoming Water Development Commission received $8.8 million from the legislature to do a 5-year project on weather modification (cloud seeding). The project will focus on the Sierra Madre/Medicine Bow Range and the Wind River Range. They have received a categorical exclusion during the National Environmental Policy Act (NEPA) process to install 12 ground-based generators in the Sierra Madre/Medicine Bow Range and are seeking approval to install generators in the Wind River Range. Also, they intend to use aircraft if the conditions are right. Weather modification will only occur during the winter. Ms. Lowry added that in addition to hoping to get additional moisture, Wyoming intends to scientifically determine if cloud seeding works.

Mr. Dalby asked if there is a ground-based snow-pack and precipitation-monitoring network and control and comparison area planned for the project. Ms. Pring said that she thought there would be some type of control. The project is science based; thus, there must be some way to monitor and verify the effects of cloud seeding.

Mr. Horak asked the States to summarize the coal-bed methane discussion that occurred yesterday (December 5, 2006) during the Yellowstone River Technical Committee meeting.

Mr. Tyrrell summarized coal-bed methane development in Wyoming. He reported that in the Tongue, Little Powder, and Powder drainages, a total of 2,993 storage-reservoir permits have been issued, which represent about 40,800 acre-feet of storage. This indicates the average capacity of the storage reservoirs is between 10 to 15 acre-feet. These permits are for both new reservoirs and old reservoirs that have been improved or were not previously permitted. Also, there are 567 temporary filings (that have been received but not yet approved) that represent about 11,100 acre-feet of storage, with most of the filings for the Powder River basin. Wyoming hired a reservoir inspector who is looking at reservoirs to determine if the reservoir has been permitted correctly and if they have been constructed in compliance with their permit.

Wyoming has received 35,915 ground-water coal-bed methane well applications from 1997 through October 2006. Many of the permitted wells have not been drilled. Most of the well permits are for northeastern Wyoming (Powder River basin) and the remaining permits are for other areas of Wyoming.

Ms. Bond asked Mr. Tyrrell for an update on Wyoming's Coal-Bed Methane Task Force and the proposed pipeline for diverting coal-bed methane water out of the Yellowstone River basin.

Mr. Tyrrell reported that two actions were taken by the 2006 Wyoming legislature. One was the creation of a task force to examine a variety of management options for coal-bed methane produced water. The task force discussed a pipeline from the Yellowstone River basin to the Platte River basin as an option. The second action was to fund the Wyoming Water Development Commission to study the pipeline option. Mr. Tyrrell did not believe the study had gone far because industry had not committed to a volume and duration of water.

Ms. Bond replied that she had seen a memo from Mr. Mike Besson on Wyoming's Coal-Bed Methane Task Force Web site indicating that the task force was hoping to present a pipeline proposal to the 2007 legislature because there was a need for water in the Platte River. The Web page stated that the governors signed an agreement regarding the Endangered Species Act recovery and the amended Platte River decree, and the pipeline is viewed as a means to provide a short-term water supply to the Platte River until other water supplies can be developed.

Mr. Tyrrell replied that he was not aware of a pipeline project that Mr. Besson was proposing to the 2007 legislature.

Ms. Bond replied that the description in Mr. Besson's memo generally covered the idea of piping some coal-bed methane produced water from the Powder River basin to the Platte River basin. She assumed that it was in accordance with the plans that were suggested as an alternative in the February 2006 ALL/DOE Wyoming – Phase II feasibility study of water management alternatives for coal-bed methane water (*http://governor.wy.gov/policies/documents/FinalPhaseIIReport.pdf*).

Mr. Tyrrell responded that the Wyoming Water Development Commission usually has an omnibus bill in the legislature that funds projects and he is not aware of initial funding for a pipeline study, beyond what he previously mentioned.

Mr. Tyrrell reported that the Wyoming State Engineer's Office has received some money to work with the Wyoming Geological Survey on coal-bed methane water-level modeling. The intent is to develop a contemporaneous water-level-surface map in the coal-bed methane area in northeastern Wyoming. Wyoming hopes for a GIS product that will help them track the potentiometric surface in the coal area as a result of natural-gas production.

Mr. Compton summarized coal-bed methane development in Montana. There are two operators in Montana (Pinnacle Gas and Fidelity Exploration and Production) operating under three permits. One of the permitted operations uses a variety of treatment strategies and the other two use an ion-exchange treatment system. There are 697 producing wells in Montana and an additional 134 permitted wells.

Three Wyoming producers and the State of Wyoming have asked for judicial review in Federal court in Wyoming of EPA's approval of the Montana Board of Environmental Review's 2003 rulemaking regarding the adoption of the water-quality numeric standards. A slightly different set of Wyoming producers has sued Montana for the Board's 2006 rulemaking that

adopted a numeric non-degradation threshold for certain waters in the Powder River basin. The Northern Cheyenne Tribe has challenged the last two Montana permits; one is a Fidelity expansion and the other is a Pinnacle Gas treatment system. Montana and Wyoming continue EPA-facilitated discussions (at Wyoming's request) to resolve water-quality issues near the border.

Mr. Tubbs reported on a conversation he had with Mr. John Wheaton, from the Montana Bureau of Mines and Geology, regarding a ground-water well network in the coal-bed methane area of Montana. In the environmental impact statement (EIS), early findings from the monitoring network indicate that ground-water declines are smaller than anticipated. Also, flow from the coal-bed methane production wells has been less than anticipated. Mr. Wheaton felt that although the drawdown effects were significant, it looks like the EIS appeared so far to provide a good conservative review of drawdown effects in the coal-bed methane area. The monitoring project is funded by a 2-year grant and additional funding is needed to continue the monitoring into the future.

Ms. Sexton reported that Montana is continuing with the expedited statewide adjudication program. Mr. Kerbel added that there are about 5,000 water-right claims for the lower Tongue River (downstream from Hanging Woman Creek), and about 2,000 for the upper Tongue River. Currently, Montana is examining and verifying the claims on the lower Tongue River. They have not started on the upper Tongue River.

Mr. Tyrrell asked if there was any duty water assigned by the State of Montana, or does the State address each claim? Mr. Kerbel replied that they look at acreage and flow rates. If the flow rate exceeds 17 gallons per minute per acre, they ask the user to provide some historical information to justify using that much water. This is part of the rules from the Montana Water Courts and the Montana Supreme Court.

Ms. Sexton added that, previously, if there was an issue noted by DNRC on a claim, the claim might go through the Water Court and the issue not be addressed if no one objected. After the last legislative session, the Water Courts are required to address issue remarks. An issue remark occurs when DNRC can not reach a resolution with the user; then DNRC presents an issue remark for that particular filing. The user has an opportunity to state their case in front of the Water Court.

Ms. Bond added for clarification that the attachments to the call letter Montana sent to Wyoming referenced a decree on the Tongue River. The decree is commonly called the Miles City Decree. That's a final adjudication and decree as to those individual water users. This is valid under Montana law until the new adjudication process is completed. So, for purposes of the Tongue River, it is also adjudicated for purposes of administration. The Water Commissioners get this charge from the judge to administer pursuant to those decrees. In addition, the Powder River decree is final.

Ms. Sexton updated the Commission on the Crow Compact. She said that Federal legislation has been drafted to ratify the Compact that has passed the Montana 1999 legislature. Federal legislation would ratify the Crow Compact and provide for Federal authority. Hopefully, this will be introduced to the 2007 congress. Montana has set aside $15 million in escrow, and it remains to be seen what the Federal Government will contribute.

Mr. Duberstein briefed the Commission on recreational use in Bighorn Lake. The Bureau of Reclamation sent a letter to the governors of the State of Montana and the State of Wyoming seeking representatives for their States to participate in a group to evaluate options and resources and provide recommendations for the Bureau of Reclamation to consider regarding recreational use on Bighorn Lake. The letter was mailed in November 2006. The Bureau of Reclamation is hoping to start the group in January 2007.

Mr. Darling added that discussions regarding management of Bighorn Lake began between the Lovell area Chamber of Commerce and Montana. The primary concern from Lovell (and Wyoming) is that they felt promises had not been realized from the formation of Bighorn Canyon National Recreation Area. Bighorn Lake inundated 73 farms and some of the economic benefits from the new reservoir have not been realized. Lovell's concern is that water levels be high enough to allow for marina operations. They suggested that, to accommodate the needs of the Horseshoe Bend Marina, flow from the dam be reduced to maintain reservoir elevations. Montana is concerned with that proposal because it would harm the nationally renowned Bighorn River fishery. Mr. Darling said that it is good to hear that the Bureau of Reclamation has joined the discussions.

Mr. Horak stated the topics of the agenda have been covered and asked for additional comments or items to be discussed.

Mr. Clubfoot stated that the Northern Cheyenne Tribe had water rights in the Bighorn and Tongue River drainages and they were concerned about receiving their 1881 water right on the Tongue River.

Mr. Fox, Northern Cheyenne Tribal Councilman, said that the Northern Cheyenne Tribe supports the resolution presented by Montana.

Ms. Lowry updated the Commission on several water-development projects in Wyoming. A watershed study in the Middle Fork Powder River basin has received Level I funding. Level I funding essentially supports a reconnaissance study. If a project looks feasible then Level II funding is generally appropriated in the next year. Level III then looks at construction, such as a new dam or rehabilitation on an existing dam. The Water Development Commission will soon set up a meeting with interested landowners regarding the study.

Additionally, a regional municipal-water supply in the Thermopolis to Greybull area is being discussed. Water projects on Ray Lake and Washakie Lake in the Wind River Indian Reservation also are being discussed.

Mr. Fix said that he became aware that a congressional earmark to fund monitoring on the Tongue River, the Powder River, and Rosebud Creek may be in jeopardy. He drafted a letter for the Northern Plains Resource Council that will be signed by water users and T&Y Irrigation District urging Montana's congressional delegation to continue funding the project. Mr. Davis added that the project Mr. Fix brought up is a surface-water-quality monitoring network in the Tongue River watershed. Most of the network is funded by the earmark. The remaining part of the network is funded by Federal cooperators and joint funding programs between the USGS and Wyoming and Montana through the USGS Cooperative Water Program. There are a total of 12 stations in the network, and seven of the stations are on the main stem of the Tongue River.

Mr. Dalby said that many of the streamflow gages in the network are important to both States for flow administration and water-quality monitoring. Only one gage is funded through the Compact. In the future, the other gages may be important in administering the Compact. It would be a shame to lose those gages. He requested that people or organizations write a letter in support of the network.

Mr. Davis said that funding for the monitoring project was added in the Senate appropriations bills for 2004, 2005, and 2006, and was added in the Senate committee version of the bill for 2007. Currently, the USGS is operating under a continuing resolution bill and it is uncertain if the earmark will remain in the Department of the Interior budget. Funding for the project in future years is currently uncertain.

Mr. Tyrrell said that it is appropriate for the Commission to support the monitoring project because it may lead to helpful understanding of administrative issues under the Compact. He made a motion that the Commission write a letter of support for funding the project (Attachment F). Ms. Sexton seconded the motion and the motion carried.

Mr. Horak said that now would be a good time to discuss the methods used to produce the record of the Commission (minutes). Previously, there was an exchange among the Commissioners and the Chairman through phone conversations and e-mails that got them to the method now used. He asked Mr. Berkas to describe the current method.

Mr. Berkas stated that the Commissioners agreed that the USGS would contract with a person to come to the Yellowstone River Compact Commission meeting and record the discussions at the meeting. The contracted person would provide a written transcript (an electronic text file) to the USGS (Mr. Berkas). The USGS would use the transcript to prepare the minutes of the meeting.

Mr. Horak asked Mr. Berkas to describe the full procedure that will be employed today through the date when the minutes are delivered to the Commissioners.

Mr. Berkas replied that Soteria Scoping (Ms. Patterson) has been hired to record the meeting and provide an electronic document transcript of the meeting. He would paraphrase the statements made at the meeting, using the transcript, to cover the main topics discussed at the meeting. Within 45 days from the meeting, a draft copy of the minutes will be distributed to the two Commissioners and they will have an opportunity to make editorial changes to better clarify their points and statements. Changes are to be returned to Mr. Berkas within 30 days. After both Commissioners are satisfied with the minutes, the minutes are approved. After the minutes from this meeting are approved, they will be incorporated into the annual report. The report will be mailed to the State Governors (Montana, North Dakota, and Wyoming) and the President's Office, and displayed on the Yellowstone River Compact Commission Web page.

Mr. Horak stated that the Compact says that the Commission will produce an annual report that will be delivered to governors of the Signatory States by the end of the calendar year (December 31). The Commission recognized that in the meeting structure for the last few years, including the annual meeting in early December, that it is not feasible for the Commission to meet

the December 31 deadline. The Commission has declared that if the Commission accomplishes the distribution of the final report between February and mid-March, then the Commission will have discharged their obligations for formal reporting of Commission proceedings.

Ms. Sexton thanked Mr. Horak for the discussion of producing the minutes because the method was not clear to her. She asked about the availability of the tape recording of the meeting. Minutes reflect what is said and generally are a summary reporting of the meeting. Montana was not aware if they had the ability to request a copy of the tape, and that is why they hired their own transcriber to attend the meeting. Mr. Moy commented that as he understands, tapes are not kept. The USGS was provided with an electronic version of what was transcribed from the tape. Ms. Sexton commented that tapes are not available to use to check minutes to make sure the minutes are accurate. If our memory fails, we have no means to try and correct the minutes. Montana would like to have either tape or transcript available to them.

Mr. Tyrrell replied that governing documents of the Commission do not say how we get our minutes. The Commission is free to choose among a number of methods. In the other Commissions of which he is a member, generally the meetings are not taped. Mr. Tyrrell is comfortable with the method currently employed. The tape is essentially a draft set of minutes and is not a formal product. The final minutes are the formal product. A real question is whether you want the tape to be available to the Commission and to the public. How do we want our draft minutes to be treated? What is the product of the Commission? Are draft products also considered products of the Commission?

Mr. Horak replied that a copy of the tape and the transcription could be provided to the Commissioners when they received the draft minutes to review. Regarding permanently archiving the tape, there may be some issues with the continued and eventual quality of that archived tape. Ms. Sexton replied that a copy of the tape and transcript would meet Montana's request. Mr. Tyrrell commented that Wyoming would like the tape and transcript and would treat both as a draft, not a final product of the Commission. Ms. Sexton commented that the tape and transcript would only be used as an editing tool to make sure the discussions they had at the meeting were included in the final minutes.

Mr. Horak commented that the tapes would not need to be archived.

Mr. Dalby suggested that the tape is not necessary because the transcript will be easier to compare to the abridged minutes than listening to four hours of tapes.

Mr. Horak commented that the Commission, through Mr. Berkas, has contracted for a verbatim transcript. He recommended that Mr. Berkas provide the transcript and the minutes to the Commissioners. At the April meeting we can review the post-mortem of how all of that works and make a decision as to how the Commission will use those various tools in making the formal record of our December meeting a year from now.

Ms. Sexton commented that she was concerned that this procedure would increase cost.

Mr. Tyrrell also was concerned with increasing cost.

Mr. Horak asked the recording Secretary (Mr. Berkas) if he could produce the minutes in the usual fashion. If the contract services provide a verbatim transcript, could he send the verbatim transcript and the tapes to the two State Commissioners? The formal record (abridged minutes) that the Commission adopts will be done in a manner such that the content will be consistent with the way the minutes were prepared in the past. Also, could he do this with no additional cost?

Mr. Berkas replied that he could send the transcript and tapes to the two Commissioners at no additional cost.

Ms. Sexton replied that before we invite a motion she wanted to comment that it was Montana's understanding there would not be a transcript. They thought it was to be taped, and the minutes would be made from the tape. They did not understand, until now, that a transcript would be made by the contractor (Soteria Scoping). This is why Montana brought along and paid for a court reporter. She wanted this as a point of clarification. Montana was not aware until this time that a transcript would be produced.

Mr. Horak asked for a motion.

Ms. Sexton moved that the minutes for this meeting with the transcript and tapes be distributed to the Commissioners and Chairman. At the April meeting they will revisit the issue and decide how to proceed in the future. Mr. Tyrrell seconded the motion and the motion carried.

Mr. Horak said that he appreciated how Ms. Sexton stated her motion, which was that the Commission will revisit this issue again. It was difficult to find somebody to provide these kinds of services for the meeting in Thermopolis. If the Commission had to bring somebody from Casper, the cost would be substantial. If the Commission feels it is necessary to have a verbatim record, then it needs to be aware that the funding currently budgeted may not be sufficient.

Ms. Sexton replied that Montana is most interested in a tape recording of the meeting.

Mr. Horak announced that the official Yellowstone River Compact Commission Web site is now accessible. Please provide him with suggestions for content on the Web site. The Web site is at *http://cr.water.usgs.gov/YRCC/index.html*.

After considerable discussion, the Commission decided to hold the next Yellowstone River Compact Commission meeting in Sheridan, Wyoming. The Technical Committee will meet in the afternoon of April 24 (Tuesday) and the Commission will meet in the morning of the April 25 (Wednesday), 2007.

Mr. Horak adjourned the meeting.

Patrick T. Tyrrell

Commissioner for Wyoming

Mary Sexton

Commissioner (Acting) for Montana

William F. Horak, Jr.

Chairman and Federal Representative

Attachments

Attachment A—Letter from the Governor of Montana Appointing Mary Sexton as the Acting Yellowstone River Compact Commissioner.

Attachment B—Letter from Jack Stults, Commissioner for Montana (Montana's Call for Water).

Attachment C—Letter from Patrick Tyrrell, Commissioner for Wyoming (Wyoming's Response).

Attachment D—Letter from Mary Sexton, Acting Commissioner for Montana (Montana's Reply to Wyoming).

Attachment E—Yellowstone River Compact Commission Resolution (Resolution Proposed by Montana).

Attachment F—Letter from Montana and Wyoming Commissioners to Senator Max Baucus (Montana) in Support of USGS Tongue River Monitoring Network.

Attachment A—Letter from the Governor of Montana Appointing Mary Sexton as the Acting Yellowstone River Compact Commissioner.

OFFICE OF THE GOVERNOR
STATE OF MONTANA

File

BRIAN SCHWEITZER
GOVERNOR

JOHN BOHLINGER
LT. GOVERNOR

RECEIVED
NOV 29 2006
ATTORNEY GENERALS OFFICE
HELENA, MONTANA

September 28, 2006

Honorable David Freudenthal
Governor of the State of Wyoming
Cheyenne, Wyoming 82002

Honorable John Hoeven
Governor of the State of North Dakota
Bismarck, North Dakota 58501

Mr. Patrick Tyrrell,
Wyoming State Engineer,
Yellowstone Compact Commission

Mr. William Horak, U.S. Geological Survey,
Chairman and Federal Representative
Commissioner for Wyoming

Dear Sirs:

Please be advised that pursuant to Article III of the Yellowstone River Compact, I have appointed Mary Sexton, Director of the Montana Department of Natural Resources and Conservation to be Acting Commissioner for the state of Montana. This appointment is effective as of October 1, 2006 given the resignation from State employment of Jack Stults, prior Commissioner. This temporary appointment will remain effective for all purposes until such time as I appoint a permanent Commissioner for the State of Montana.

Please be assured that Montana holds the Commission in the highest esteem. I assure you that Montana will continue to take all means reasonable and necessary to ensure a smooth transition to a permanent commissioner in the near future.

Thank you in advance for your cooperation. Here is the contact information for the Acting Commissioner:

Mary Sexton, Director
Department of Natural Resources and Conservation
1625 Eleventh Avenue
PO Box 201601
Helena, MT 59601-1601
msexton@mt.gov
(406) 444-2074

Sincerely,

BRIAN SCHWEITZER
Governor

STATE CAPITOL • P.O. BOX 200801 • HELENA, MONTANA 59620-0801
TELEPHONE: 406-444-3111 • FAX: 406-444-5529 • WEBSITE: WWW.MT.GOV

Attachment B—Letter from Jack Stults, Commissioner for Montana (Montana's Call for Water).

DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION

BRIAN SCHWEITZER
GOVERNOR

DIRECTOR'S OFFICE (406) 444-2074
TELEFAX NUMBER (406) 444-2684

STATE OF MONTANA

WATER RESOURCES DIVISION (406) 444-6601
TELEFAX NUMBERS (406) 444-0533 / (406) 444-5918
http://www.dnrc.mt.gov

1424 9TH AVENUE
PO BOX 201601
HELENA, MONTANA 59620-1601

July 28, 2006

Patrick T. Tyrrell
Wyoming State Engineer
WY State Engineer's Office
Herschler Building, 4 East
Cheyenne, Wyoming 82002

RE: Call for Water under Yellowstone River Compact

Dear Pat:

I am writing today to request that Wyoming administer the waters of the Tongue and Powder Rivers by curtailing post-1950 diversions or storage to the extent required by the Yellowstone River Compact ("Compact") under current conditions. I was unable to contact you by telephone on Friday to let you know this was coming, but I will try again on Monday morning.

The Tongue River. As you know, the situation in the Tongue is quite dire, as noted in the accompanying affidavits of the President of the Tongue River Water Users Association and the Montana Water Commissioner for the upper part of the Tongue River. The river flow is now about one-fourth of the previously recorded low, and is supporting only the first right on the river. We were unable to fill the reservoir this year, in part, we believe, because, during the normal filling period Wyoming was in a "free river" situation and had no regulation of its post-1950 water uses. Article V. A of the Yellowstone River Compact provides that each State is entitled to satisfy its pre-1950 water rights before either state may supply its supplemental or post-1950 uses. As a practical matter, that means that the upstream state, Wyoming, cannot allow its post-1950 users to take their water if pre-1950 users in Montana are not being satisfied. Our 1938 Reservoir contract holders are not able to use the full amount of their contracts and the decreed pre-1950 users of direct flow in Montana are being seriously shorted on rights they would normally receive to finish the irrigation season. The status of the river as of July 21, 2006 is indicated in the enclosed affidavits. Flows since then have been as low as 10 cfs at the state line gage, while the Dayton Gage was at 67 cfs and the Monarch gage at 13 cfs. This is consistent with Wyoming's statement at the Compact Commission meeting in April that Wyoming does not regulate any uses on the mainstem.

As the water commissioner indicates, only the first right on the Tongue has been receiving any water. See Kepper Affidavit, ¶ 6. No other valid rights are currently being met out of the 1914 decree. I have attached a copy of the "Decree of the Waters of the Tongue River," entered on May 20, 1914, for your reference. Water rights in the 1914 decree combine to

a total flow rate of 431.64 cubic feet per second during the irrigation season. Current flow at the state line is at about 15 cubic feet per second, while the mean for this day is 234 cfs. Because the Reservoir did not fill this year, both the contract holders and the Northern Cheyenne Tribe are experiencing a shortage of storage water. The Northern Cheyenne Tribe also holds direct flow reserved water rights on the Tongue and contract water from the State of Montana that are being shorted. We have notified them of our intention to call upon Wyoming to administer the Compact waters and will apprise them of further activities between the States.

Wyoming is required by the Compact to regulate its post-1950 uses on the Tongue, including uses on the mainstem, until Montana's pre-1950 uses are satisfied. From the information provided at the April meeting, we understand that there is stored water in the headwaters of the Tongue that is post-1950 and was stored while Montana's pre-1950 uses were being shorted. If so, this water should be made available immediately to our users. See attached Wyoming Reservoirs Capacity Report.

The Powder River. As of Tuesday the 25th, there was essentially no water in the Powder River at the Moorhead gage. The gage reading is 1.1 cfs, while the mean for this day is 432 cfs. Most irrigators on the Powder have valid water rights to cover their irrigated lands two or three times each season, which would have allowed one more irrigation yet this season. Obviously, they are all shut down now until the river comes up considerably. Importantly, flows are extremely low and the water is very salty for this time of year. Degradation of water quality due to low flows results in water not fit for irrigation of some soils. Flows north of Powderville, Montana are inconsistent to nonexistent, and salt concentrations are extremely high. This is the worst some folks have seen at this time of year on the Powder in Montana.

We request an immediate meeting of the technical committee to supervise the release and delivery of this water. Additionally, the technical committee should develop a process for continued delivery of water to satisfy senior users throughout the summer. As we discussed, unless we all get an unprecedented amount of rain throughout the summer, this is a particularly bad year for water supply. It is essential that we work quickly and appropriately to administer our interstate waters to satisfy our users in a way that is least disruptive to water users in both States. Furthermore, the water administration should take into account that while many of those water rights users are irrigators, some are municipal water users in our cities and towns along the rivers, including the community of Miles City, Montana.

The continuation of the extreme drought seriously affects us all. The States can best serve the water needs of their citizens by developing a mutually workable process for timely delivery of waters necessary to meet calls on valid pre-1950 rights in addition to providing for the Compact apportionment of all waters developed after 1950. However, failing the cooperative approach, Montana is prepared to undertake whatever action we believe is in the best interests of our citizens to protect our rights that are secured in the Compact. Our first goal, as recognized and affirmed in the Compact, is to protect valid pre-1950 rights in both States, through cooperation between the States on behalf of the citizens of each State.

Although this letter in not required by the Compact, as Compact Commissioner for Montana, and as directed by Governor Schweitzer, this letter constitutes Montana's call and demand, under the terms of the Compact, for water to satisfy our valid and protected pre-1950 water rights on the Tongue and Powder Rivers.

Attached is documentation to support the call. Due to the dire need, we must request that you confirm that water will be administered as requested or otherwise respond within a week. Thank you in advance for your cooperation on this difficult matter.

Sincerely,

Jack Stults
Division Administrator
Water Resources Division
Commissioner for Montana

cc. Montana Governor Schweitzer
Wyoming Governor Freudenthal
Bill Horak, Chair, Yellowstone River Compact Commission
Jeannie Whiting, Northern Cheyenne Tribe

Enc. Affidavit of President of the Tongue River Water Users Association
1914 Decree Table

IN THE MATTER OF THE YELLOWSTONE RIVER COMPACT

RECEIVED
OCT 24 2005
ATTORNEY GENERALS OFFIC
HELENA, MONTANA

AFFIDAVIT OF ART HAYES JR.

STATE OF MONTANA)
: ss.
County of Rosebud)

I, Art Hayes Jr, being duly sworn, do hereby affirm and state as follows:

1. I am a competent adult citizen of Montana. I reside at Birney Montana. I have resided at that location since 1962. My address and telephone numbers are: 208 Hanging Woman Creek Road, phone (406) 984-6260.

2. I am a farmer/rancher and irrigate out of the Tongue River in Montana. My family has done so for 122 years. I do so under authority of water rights in name of The Brown Cattle Company, claim numbers 42C 145052-00 with a priority date of April 1, 1902,diverted at SW SW SW § Sec of Sec 6 Twp 6S Rge 43E Rosebud; Claim number 42B 145051-00 with a priority date of September 22, 1899.diverted at SW NE NE § Sec of Sec 13 Twp 6S Rge 42E Rosebud; claim number 42C 145047-00 with a priority date of June 1, 197, 1diverted at SE NE SW Qtr Sec of Sec 25 Twp 5S Rge 42E Rosebud; and water purchase contracts from the Tongue River Reservoir.

3. The state water purchase contract referred to above is a 1650 acre-feet contract from the Tongue River Reservoir, a Montana State owned Reservoir with a priority date of 1937.

4. I have resided in the rural area of the Tongue River, in the vicinity of Birney Montana for 44 years. My livelihood requires a reliable water supply for irrigation, stock, and domestic use. My work and way of life depend heavily on water of a quality sufficient

to meet the needs of irrigation, domestic, and stock use. For all or most of the years in which I have lived in the vicinity, I have personally and regularly observed the river conditions throughout the irrigation season and I have more generally observed the river conditions throughout the year.

5. In addition to being a water user myself, I am the President for the Tongue River Water Users Association. (TRWUA) a nonprofit water users association comprised of members with water purchase contracts for the delivery of water from the Tongue River Project. I have served in this capacity since 1991.

6. In my capacity as President for the TRWUA, I administer the water purchase contract deliveries of water by measuring actual stored water, observing snowpack, monitoring all available state and federal water data, including, United States Geologic Survey and National Resource Conservation Service, and Montana Department of Natural Resources and Conservation data for the basin, measuring inflow and outflow, and adjusting the Tongue River Dam outlet in response to calls for water purchase contracts. I also honor calls for senior water rights holders.

7. As Montana is a prior appropriation state, whenever a call for water from a water right holder senior to the state project calls for water, I must honor that call, even if that means the state water rights and other junior appropriators' needs will go unfulfilled. To perform these functions I maintain close contact with the water users all up and down the Tongue River, all the way to Miles City, so that I have a good understanding of when the shortages my occur and what the needs are, especially relative to what normal river levels

are. In this way I can anticipate shortages and attempt to satisfy the most senior rights while minimizing harm to the junior users whose water rights I cannot honor.

8. Based on my knowledge of the River and its users, and based on the training I received from the previous President, Herb Mobley, who performed these functions for twenty years, I try to run the dam so that there is 50 cfs of water at Miles City. The waters of the Tongue River are included in the 1914 Miles City decree, which I use to administer the water rights.

9. On January 18, 2006 the Tongue River Advisory Committee (an advisory group in the Northern Cheyenne compact) met in Billings, at that meeting the group looked at snowpack and projected inflows. The group concluded that because of low flows, diminishing snowpack, and expected continuation of low flows, the Reservoir would be managed to maximize storage between January and March 1, 2006. The Tongue River below the dam was staged down to its minimum 75cfs, but due to falling inflows I was not able to meet the set goal of 3000 acre-feet of storage. Between March and June, our normal period of storing, we left the outflow at its minimum to store the maximum amount of water coming down the river.

11. It is my understanding that Wyoming does not regulate its users during "free river" conditions, typically occurring during the period of year that we have a right to store water. This year, Montana was unable to fulfill its right to store its 1937 water right. Montana was short approximately 6,381 acre-feet of water. At this time, that shortage is shared between the Tongue River Reservoir contract holders and the Northern Cheyenne Tribe, although the state and the tribe do not necessarily agree on the proper method of

sharing the shortages. I do not speak for the Northern Cheyenne Tribe, but only on the basis of my personal observations and experiences in regulating the dam.

12. From my experience in administering the water rights from the Tongue River dam for over 16 years, and from my training from the previous dam manager who ran the project for over twenty years, it is my opinion and observation that there has been insufficient water this year to meet the 1937 storage right of the state project and the Federal Reserved Water right of the Northern Cheyenne Tribe.

13. June 17, 2006 is the last date that the river contained sufficient water to satisfy the 1914 Montana decreed rights in the Tongue River. By July 15, 2006 the river had dropped to a flow sufficient to satisfy only the first water right on the Tongue River.

14. To my knowledge, Montana water rights with perfected prior appropriative dates before 1950 are not being satisfied at this time in the Tongue River Drainage. The 1937 right in the project is not being satisfied at this time, nor are other valid senior water rights of the 1914 Miles City Decree and the Northern Cheyenne Tribe. Without significant additional inflows into the drainage, the project contracts and Tribe will only receive partial service and all but the very most senior water rights will receive no further water at all this irrigation season. The need for irrigation water is serious and immediate.

15. Water quality sufficient to meet the appropriative right purposes requires that the water delivered to the project meet Montana's water quality standards for B-1 Rivers under the Montana Water Quality Act.

FURTHER AFFIANT SAYETH NOT

DATED this 21 day of July, 2006.

ART HAYES Jr.

On, 31st day of July 2006, the aforementioned affiant appeared before me and swore or affirmed that the above facts were within his or her personal knowledge and that they believed them to be true.

SUBSCRIBED AND SWORN to before me this 31st day of July 2006, 2006.

Lori Bloede
PRINTED NAME
Lori Bloede
Notary Public for the State of Montana
Residing at Ashland MT
My Commission Expires August 18 2007

IN THE MATTER OF THE YELLOWSTONE RIVER COMPACT

RECEIVED
JUL 2 1 2006
ATTORNEY GENERALS OFFICE
HELENA, MONTANA

AFFIDAVIT OF CHARLES KEPPER

STATE OF MONTANA)
: ss.
County of Rosebud)

I, Chuck Kepper, being duly sworn, do hereby affirm and state as follows:

1. I am a competent adult citizen of Montana. I reside at Birney Montana. I have resided at that location since 1993. My address and telephone numbers are: East Fork Hanging Woman Creek Road, phone (406) 984-6284. I have resided there since 2000.

2. I am a retired maintenance foreman for Shell Oil. I have no irrigations rights in Montana. For most of the years since 2000, including this year, I have been appointed a water commissioner on the Tongue River by the Honorable Judge Hegel, Montana District Court in and for the Sixteenth Judicial District in Forsyth Montana. I have attended the water commissioner training given by the Department of Natural Resources and Conservation.

3. In my capacity as water commissioner for the Tongue River, I admeasure and administer the water rights established in what is commonly referred to as the 1914 Miles City Decree, as well as the water released from the Tongue River Dam for water purchase contract holders. In some years I have performed this function for the entire stretch of the mainstem of the Tongue River from the dam to the T and Y Ditch Company at Miles City. For this year and the last three years, the Honorable Judge Hegel has appointed another commissioner to administer the Decree for the rights below the Brandenburg Bridge. That Commissioner this year is Charlie Gephardt. Charlie admeasures and administers the river

below the Brandenburg Bridge. In my capacity as Commissioner for the Upper Tongue, I work closely with Charlie to assure that only the most senior rights are satisfied in order of priority, and that our records of water deliveries are accurate.

4. In my capacity as water commissioner, I am required personally and regularly to observe the river conditions throughout the irrigation season. I have more generally observed the river conditions throughout the year since I have lived in Montana.

5. Between May 2006 when I was first appointed, and June 17, 2006, I gradually began cutting off decreed water rights of the 1914 Decree as required to satisfy any senior water right holders calling for their water. The Tongue River flow dropped below the amount of decreed water being called for on June 17, 2006, and so I began to enforce the priorities on the River on that day. On June 21, 2006, the flow at the state line was 233 cfs. That is enough to satisfy only the first six water rights of the twenty-two in the 1914 Decree.

6. On July 19, 2006, there is only 15 cfs coming into the Reservoir. That is only enough to satisfy the first right of the twenty-two in the Decree. The first right is for Nance Cattle Company, priority date July 6, 1886 for 10.49 cfs. I deliver that amount to the Nance Cattle Company headgate, and allow the remainder, less than 5 cfs, to travel downstream for the second right in the decree, T&Y Ditch Company. T& Y Ditch has an August 9, 1886 right for 187.5 cfs. Due to conveyance losses, T&Y is now receiving essentially no water at all from the Decree.

7. In our capacities as water commissioners, it is Charlie and my responsibility to assure that none of the other decreed right holders receive any more of their prior rights unless and until the River flows exceed those two first rights. If and when the River comes

up, we can allow additional users to get water in accordance with their priority date in the Decree. Until then, other than the Nance right, the only water being delivered is the water purchase contract water.

8. At this time we are delivering only a percentage of stored water to the water purchase contract holders. Because the Reservoir did not fill this year, the water purchase contract holders are sharing the shortages, so each will be delivered only a percentage of their contract rights. Those contract rights have a priority date of 1937. If there were no stored water in the system the River would be dry long before it reached Ashland, as the less than 5 cfs left after the first right is satisfied would be lost to seepage.

FURTHER AFFIANT SAYETH NOT

DATED this 21 day of July, 2006.

Charles Kepper

CHARLES KEPPER

On 21st day of July 2006, the aforementioned affiant appeared before me and swore or affirmed that the above facts were within his or her personal knowledge and that they believed them to be true.

SUBSCRIBED AND SWORN to before me this 21st day of July, 2006.

Notary Public for the State of Montana
Residing at Klamath Falls
My Commission Expires [illegible]

DECREE OF THE WATERS OF TONGUE RIVER, Docket No. 2809, and MODIFIED AND SUPPLEMENTAL JUDGEMENT AND DECREE ENTERED ON THE 20th DAY OF MAY, 1914 – Custer County Montana.

Number	Name	Date	No. of Miners Inches	cfs
1	Jos. T. Brown L & C Company	7-6-1886	419.55	10.49
2	Miles City C & I Co. T&Y	8-9-1886	7500.00	187.50
3	Brewster Est. W. Ditch	4-19-1890	159.90	4.00
4	Jos. T. Brown L & C Company #4	7-14-1891	359.40	8.99
5	Jos. T. Brown L & C Company #2	6-1-1894	257.30	6.43
6	Fred Barringer, et al.	6-1-1895	941.30	23.53
7	R.F. Colbert	6-15-1895	133.84	3.35
8-A	Jos. T. Brown L & C Company #3	10-27-1896	59.15	1.48
8-B	Tobias Salverson	10-27-1896	75.15	1.88
8-C	George Hilbertson	10-27-1896	26.50	0.66
8-D	Peter Salverson	10-27-1896	25.50	0.64
9-A	Ball Ranch, E. Ditch	1-27-1897	1163.75	29.09
9-B	John L. Flowers	1-27-1897	49.70	1.24
10	C.M. Taintor #1	10-1-1897	83.69	2.09
11	B.F. Shreve	7-1-1898	182.35	4.56
12	Raseus O. Lee	10-1-1898	45.65	1.14
13A	Thomas Salverson	5-1-1899	24.50	0.61
13B	C.A. Randall	5-1-1899	78.86	1.97
14A	Jos. T. Brown L & C Company #5	9-22-1899	533.85	13.35
14B	Brewster Est., E. Ditch	9-22-1899	187.50	4.69
14C	Grace S. Brewster	9-22-1899	15.30	0.38
14D	P.L. Peterson	9-22-1899	26.85	0.67
15	C.M. Taintor #2	6-1-1900	81.13	2.03
16	Tongue River Est. Co. (now S-H)	12-29-1900	1781.00	44.53
17	Hunt Heirs	1-29-1901	113.20	2.83
18	Jos. T. Brown L & C Company #6	4-1-1902	276.30	6.91
19A	S.A. Hotchkiss	12-10-1902	157.10	3.93
19B	William Wolff	12-10-1902	395.00	9.88
20	Ball Ranch Co. W. Ditch	12-17-1908	314.45	7.86
21	Indian Service	3-24-1909	1200.00	30.00
22	G.B. Pope	11-22-1910	597.90	14.95
		Total	17265.67	431.64

This table does not reflect any current name changes.

Attachment C—Letter from Patrick Tyrrell, Commissioner for Wyoming (Wyoming's Response).

State Engineer's Office

HERSCHLER BUILDING, 4-E CHEYENNE, WYOMING 82002
(307) 777-7354 FAX (307) 777-5451
seoleg@seo.wyo.gov

DAVE FREUDENTHAL
GOVERNOR

PATRICK T. TYRRELL
STATE ENGINEER

August 9, 2006

Mr. Rich Moy
Acting Division Administrator
Water Resources Division
Department of Natural Resources and Conservation
P. O. Box 201601
Helena, Montana 59620-1601

Dear Rich:

I am providing Wyoming's initial response to the issues Jack Stults raised in his letter of July 28, 2006. As we discussed when Montana sent a similar letter in 2004, this multi-year drought has caused unprecedented low stream flow in many areas of both of our states. The lack of water is taking its toll on our water users as well, and we are experiencing similar conditions to those outlined in your letter. We too are regulating water rights back to the 1880's in the Tongue and Powder River basins, and have numerous pre-1950 rights going unfulfilled. Although no formal call for regulation within Wyoming has been received on the mainstem Tongue River, that in no way implies that our pre-Compact rights are being met to any significant degree.

For your information, several tributaries in the Tongue and Powder River basins in Wyoming have been in regulation this entire irrigation season; Big and Little Goose Creeks for instance never had a right junior to 1883 on at all. In the upper Powder River drainage, regulation is to the Sahara Ditch priority and in the Crazy Woman decree area, only one right is getting water. Piney Creek and Lower Clear Creek have been regulated to pre-1900 rights since mid-June and are now regulated back to 1884. Both Sheridan and Buffalo are on municipal rationing to their water customers. And we have entirely emptied several of our smaller mountain reservoirs and several more will be fully drained in the next few weeks.

Your letter purports the Compact to say things that are clearly only Montana's recent interpretation. Montana's interpretation of Article V, as described in the second paragraph of your letter, is quite different from how the Commission, including Montana, has operated in the past. As the administration of the Compact was being analyzed by the two states in the 1980's, it was understood that the only water being apportioned was the post-1950 "unused and unappropriated waters of the interstate tributaries...." Montana's more recent stance that the pre-1950 rights in Montana must be met by contemporaneous regulation of post-1950 rights in Wyoming is unsubstantiated by the

Compact itself. As this position is of your own making, Wyoming feels no obligation to change its long held position regarding the administration of the water rights in place as of the date of the Compact. Montana continues to assert as fact an interpretation of the Compact we have taken great exception to for over two years now. An interstate delivery schedule for pre-1950 rights is not now, and never was, a provision of this Compact.

You suggest in your letter that the Technical Committee should be convened to take action related to water storage in the basin. I must admit that I see some irony in Montana's suggestion of the use of the Technical Committee since it has been difficult in the past to get extensive participation by your staff in the operations of that committee. Wyoming has taken the lead in agenda building, taking notes, distribution of information and other logistics associated with the Committee. After your "call" letter in 2004, Wyoming stood ready to host the Technical Committee and share additional information regarding water operations in the Tongue and Powder River basins in Wyoming. We wanted to show you around and see how we truly operate. Montana twice cancelled these meetings after accepting the invitation and having firm dates selected. If you are seeking cooperation from Wyoming, it has been there.

As the Compact makes no provision for the "call" your letter suggests, it appears in our mutual interest to devise an administration system, much like our states worked on in the 1980's, to address the allocation methods described in Article V.C. We sought to get Montana engaged in this process in 2004, to no avail. Had we succeeded, the work product may now be valuable given the situation we find in 2006

I find your claimed inability to fill Tongue River Reservoir confusing, as records show Montana released excess amounts from the reservoir during the winter months that would have easily provided the necessary water to fill it. Your own website records show that Tongue River Reservoir was filled to 97 percent of capacity as recently as July 9, 2006. The additional 2,000 (+/-) acre feet of water needed to completely fill would have been there had Montana judiciously managed the reservoir. Wyoming cannot manage the water once it crosses the state line; only Montana can. And, as long as there is water passing the compact points at the mouth of the Tongue (at Miles City) and Powder (at Locate) Rivers, there is evidence of water for allocation under the Compact for both our states. Remember, Montana has over three times the storage in the Tongue River basin for less than half the pre-compact acres, as compared to Wyoming. So, the ability to husband Tongue River flows is far greater in Montana than in Wyoming.

I agree that we can do a better job of collecting, analyzing and sharing information among our two states. That's why Wyoming took the initiative to get an appropriation from our Legislature to gather and analyze more information, contingent upon a similar commitment by Montana. This good-faith offer for in-kind sharing of these resources was discussed at our Commission meeting in April, and was intended to further our objective understanding of the uses on these rivers. It was also intended to keep these

Compact discussions science-based among our professional staffs to forestall unnecessarily elevating any compact issues out of sheer lack of understanding. I now question whether Montana is committed to this objective approach.

In sum, Wyoming will not release stored water for the benefit of Montana, as Wyoming believes it has properly stored that water in accordance with Compact provisions. I will also not agree to the convening of a meeting of the Technical Committee until Montana's Compact Commissioner and I can agree on exactly what it is we want them to do. As the States' Commissioners, we have an obligation to give clear direction to the Technical Committee in order for progress to be made on these difficult, complex issues. If your new Commissioner wishes to meet to discuss what can be done under the Compact, as written, I'll be there.

Jack's pending retirement leaves me concerned about the continuity of representation from Montana. Working through these difficult interstate issues takes a significant commitment of time and effort on the part of all concerned. I am hopeful that Montana will soon name its replacement to the Yellowstone River Compact Commission so that we can return to constructive dialog. I am confident that such a dialog will move us forward in resolving these difficult matters. Please tell Jack that I do wish him the best after his departure from state government in Montana.

Sincerely,

Patrick T. Tyrrell
State Engineer

Cc: Bill Horak, Chairman, Yellowstone River Compact Commission

Attachment D—Letter from Mary Sexton, Acting Commissioner for Montana (Montana's Reply to Wyoming).

DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION

BRIAN SCHWEITZER, GOVERNOR
1625 ELEVENTH AVENUE

STATE OF MONTANA

DIRECTOR'S OFFICE (406) 444-2074
TELEFAX NUMBER (406) 444-2684
PO BOX 201601
HELENA, MONTANA 59620-1601

October 3, 2006

Patrick T. Tyrrell
Wyoming State Engineer
WY State Engineer's Office
Herschler Building, Four East
Cheyenne, Wyoming 82002

Re Montana's Call for Water Under Yellowstone River Compact

Dear Mr. Tyrrelt

Thank you for your letter of August 9, 2006 to Rich Moy as an initial response to our letter to you of July 28, 2006. I am responding to you in the capacity of Montana's Acting Commissioner to the Yellowstone River Compact.

I understand from your letter that certain pre-1950 water rights in the Tongue and Powder River Basins in Wyoming were not being satisfied at the time of your letter. You did not state the extent to which post-1949 direct flow and storage rights were being satisfied in Wyoming. Would you please provide us the water administration records for this year in the Tongue and Powder River Basins in Wyoming?

The States continue to have a disagreement over whether water applied to beneficial use under pre-1950 water rights in the two States was apportioned in the Compact. Your position is very clear. Wyoming continues to assert that pre-1950 water was not apportioned by the Compact. It is hard to credit such a position, however, when the Compact itself states that the three States entered into the Yellowstone Compact "desiring to provide for an equitable division and apportionment of [the waters of the Yellowstone River and its tributaries]." One exception is specified, namely, for "waters within or waters which contribute to the flow ofstreams within Yellowstone National Park." There are no other exceptions. One point on which we apparently do agree is that the final word is, as you say, the "Compact itself."

You also state "An interstate delivery schedule for pre1950 rights is not now, and never was, a provision of this Compact." You are correct to the extent that an interstate delivery schedule for pre-1950 rights is not quantified and set out verbatim in the Compact, but Montana understands the Compact to provide the general principles from which delivery obligations can be determined. In fact, the delivery obligation is relatively simple: whenever there are unsatisfied pre-1950 rights in Montana, there is no water available in Wyoming for post1950 uses.

Your assertion that Montana has changed its interpretation of the Compactis incorrect. It ignores that the States have been at loggerheads for years over Wyoming's assertion that it has no obligation to provide water to Montana to satisfy pre1950 water rights Ultimately, as I think we agree, it is the Compact itself that controls

CENTRALIZED SERVICES DIVISION (406) 444-2074
CONSERVATION & RESOURCE DIVISION (406) 444-6667
RESERVED WATER RIGHTS COMPACT COMMISSION (406) 444-6841
OIL & GAS DIVISION (406) 444-6675
TRUST LAND MANAGEMENT DIVISION (406) 444-2074

Attachment D—Letter from Mary Sexton, Acting Commissioner for Montana (Montana's Reply to Wyoming). —Continued

Your suggestion that the States devise an administration system to allocate water under Article V C of the Compact is perhaps a good one. First, however, I believe we need to come to terms on the status of pre-1950 water rights. Also, the States' attempt in the 1980's to devise an administrative system for the pst-1950 water was unsuccessful. The reasons for that failure and ways to avoid a repetition of it need to be understood before engaging in such a process again. We would be wasting our effort attempting to establish an administrative mechanism for the unused and unappropriated water when we are not even receiving our pre1950 water. Thus, while our focus has recently shifted to the earlier water, our position that the Compact is an equitable apportionment and allocation of the entire river is not new.

You also criticize Montana for its administration of water within Montana. As you are awareboth in Wyoming and Montana there are priority administration considerations that affect instate management of water even in the winter. In any event, you need not concern yourself with Montana's administration of the water to which it is entitled under the Yellowstone River Compact.

You allege that Montana has not firmly committed to cooperating with Wyoming on information sharing. This is not true. In the final analysis though, all the information sharing in the world has not and will not change Wyoming's position on its obligation to honor Montana's pre-1950 water rights as required by the Compact.

As the foregoing attests, the States are not in agreement on some important issues with respect to the Yellowstone River Compact. Nevertheless, I fully support your thought that the States need to rely on science-based staff discussions between the States to ensure that, to the maximum extent possible, our differences are resolved on the basis of objective engineering and science In that vein, I am seeking an appropriation to allow the State of Montana to join with Wyoming in gathering and analyzing the hydrologic and engineering information needed to maximize the States' ability to resolve their differences on an objective basis.

Sincerely,

MARY SEXTON, DNRC Director
Acting Montana Commissioner, YRCC

cc: Bill Horak, Chair, Yellowstone River Compact Commission
Jeannie Whiting, Northern Cheyenne Tribe

Attachment E—Yellowstone River Compact Commission Resolution (Resolution Proposed by Montana).

Yellowstone River Compact Commission
Resolution
Proposed by the State of Montana
December 6, 2006

WHEREAS, Article III of the Yellowstone River Compact (Compact) established this Commission to administer the provisions of the Compact as between the States of Wyoming and Montana, to make recommendations to the States upon matters connected with the administration of the Compact, and to perform any act which the Commission may find necessary to carry out the provisions of the Compact;

WHEREAS, the Compact provides in its first paragraph as follows:

> "The State of Montana, the State of North Dakota, and the State of Wyoming, being moved by consideration of interstate comity, and desiring to remove all causes of present and future controversy between said States and between persons in one and persons in another with respect to the waters of the Yellowstone and its tributaries other than waters within or waters which contribute to the flow of streams within the Yellowstone National Park, and desiring to provide for an equitable division and apportionment of such waters . . . have resolved to conclude a Compact . . . for the attainment of these purposes";

WHEREAS, Article V.A of the Compact states, "Appropriative rights to the beneficial uses of the water of the Yellowstone River system existing in each signatory State as of January 1, 1950, shall continue to be enjoyed in accordance with the laws governing the acquisition and use of water under the doctrine of appropriation";

Attachment E—Yellowstone River Compact Commission Resolution (Resolution Proposed by Montana). —Continued

WHEREAS, Article X of the Compact states, "No water shall be diverted from the Yellowstone River Basin without the unanimous consent of all the signatory States"; and

WHEREAS, the Commission desires to clarify the scope of the allocation and apportionment of the Compact to facilitate future management and administration and avoid further controversy;

NOW, THEREFORE, the Commission hereby adopts the following resolution:

The Commission hereby recognizes, and recommends to the States that they adhere to, the following principles with respect to the administration of the Compact:

1. The Compact was intended to effect and did effect a full equitable division and apportionment of all the waters of the Yellowstone River System as defined in Article II of the Compact;

2. Article V.A of the Compact apportions among the compacting States the waters of the Yellowstone River System that were in use in each State on January 1, 1950 and for which appropriative water rights existed in each State as of that time;

3. Article V.A of the Compact requires Wyoming to curtail consumption of the water of the Yellowstone River System in excess of Wyoming's pre-January 1, 1950 consumption of such water whenever the amount of water necessary to satisfy Montana's pre-January 1, 1950 uses of such water is not passing the stateline;

4. Article V of the Compact restricts Wyoming's pumping of groundwater within the Yellowstone River System to the extent that such pumping depletes waters apportioned under the Compact; and

5. Article X of the Compact prohibits any export outside the Yellowstone River Basin of native surface water or groundwater, including water produced in connection with the production of coalbed methane (coalbed natural gas), without the unanimous consent of all the signatory States.

_____

Mary Sexton
Acting Montana Commissioner

_____

Patrick T. Tyrrell
Wyoming Commissioner

Attachment F—Letter from Montana and Wyoming Commissioners to Senator Max Baucus (Montana) in Support of USGS Tongue River Monitoring Network.

December 8, 2006

Senator Max Baucus
511 Hart Senate Office Building
Washington, DC, 20510

Re: FY 2007 Appropriations Request -- USGS Tongue River Streamflow and Water Quality Monitoring Network

Dear Senator Baucus:

We are contacting you to voice our strong support for continued funding of the U.S. Geological Survey's Tongue River Streamflow and Water Quality Monitoring Network. Past funding for the network was secured through earmark funding obtained largely through the Montana delegations cooperative efforts. We ask that the earmark be continued for FY 2007 at an amount of $900,000.

The Tongue River Streamflow and Water Quality Monitoring Network provides valuable information used by government, industry, and landowners to guide coal-bed methane development, schedule irrigation water use, and protect and maintain water quality for fish and wildlife. In addition, the Yellowstone River Compact Commission, who oversees the Yellowstone Compact between Montana, Wyoming and North Dakota, uses the information in support of transboundary water management. Continuing drought makes water data collected on the Tongue River necessary for responsible development of coal-bed methane resources in Montana and Wyoming, maintenance of water quality for irrigation, and for efficient use of limited water supplies. Without continued provision of the streamflow and water-quality data, potential for water-use conflicts will increase significantly.

Please contact us if you have questions concerning our use of the Tongue River data or our support for the project.

Sincerely,

Mary Sexton
Montana Commissioner
Yellowstone River Compact Commission
and Director, Montana Department of
Natural Resources and Conservation

Patrick T.Tyrrell
Wyoming Commissioner
Yellowstone River Compact
Commission and Wyoming State
Engineer

cc. Senator Burns, Representative Rehberg

Appended Minutes, Technical Committee — April 12, 2006:

Yellowstone River Compact Commission, Technical Committee Discussions, Sheridan County Courthouse, 2nd Floor, Sheridan, Wyo.

1. Introductions

The meeting began at 1:45 p.m. Introductions were made and a signup sheet was sent around. Attendees are listed at end of minutes. No additions were made to the agenda. Ms. Lowry gave an overview of what tasks are before the Technical Committee and why the Commission established the Technical Committee. Mr. Tyrrell welcomed the group to Thermopolis.

2. Hydrological information from various sources

U.S. Geological Survey

Mr. Miller had a handout of long-term gages in the Wyoming portions of the basins tributary to the Yellowstone River to give a historical context of the March 2006 streamflows. A request was made to provide box charts next year to help with the problem of the average numbers in Little Powder River basin where a couple of high-flow events can skew the average. Mr. Miller also had information on deviation from mean for the period of record for several Wyoming gage sites.

Mr. Berkas provided a handout of information on Montana key gages with bar graphs of the period of record and flows for this water year so far.

Natural Resources Conservation Service

Mr. Kaiser had handouts summarizing the snow accumulations in the basin.

National Weather Service

Ms. Springer presented a powerpoint of the precipitation received thus far in the water year. Discussion was held on the long-term forecasts and the variables that are used by the NWS in making these 30-60 day plus forecasts for precipitation and temperature.

Bureau of Reclamation

Mr. Guenthner reported that Bull and Bighorn Lakes and Boysen and Buffalo Bill Reservoirs storage amounts are above last year. All are forecast to fill except Bighorn. Bighorn should fill to about 70 percent of capacity, but the instream flow release from the reservoir will be higher this year than during the drought years.

3. Forecasts and runoff estimates

Mr. Kaiser handed out a summary of the forecasts based on April 1 conditions.

4. Reservoir operations and storage information in both states

Mr. Knapp noted that the private reservoirs on the east side of the Bighorns are coming into this year with more carryover than in 2004. The rains last spring enabled these facilities to fill, and he is hopeful that the reservoirs will fill this year during runoff. Mr. Stults noted that the Committee is now getting more sophisticated with the water-supply piece of the water budget. We don't have an equal amount of information on the demand side yet. Perhaps the joint state study, if funded, would provide the resources to gather more of the demand data.

Mr. Tyrrell noted that some of these data are available for the larger diversion facilities in Wyoming through their Water Planning Program.

Mr. Kerbel suggested that the Powder River basin irrigators are changing their traditional irrigation regime to include more fall irrigation. If Wyoming were to give an overview presentation of the diversion data and descriptions available in the Water

Plans to the Technical Committee. Mr. Kerbel would be interested in Wyoming focusing on the main stem Tongue River. Montana would also be interested in the operation of Lake DeSmet.

5. Request from Commission to review bar charts in annual report and adjust period of record for each gage

Mr. Berkas directed the Technical Committee to the bar graphs that have been shown in the annual report for a number of years. The Committee agreed that the monthly bar chart portion should show: this year, last year, and the 30-year average. A separate period of record, annual bar chart should be added below the monthly bar chart and include a line showing the average flow.

6. Coal-bed natural gas discussion

Montana Bureau of Mines and Geology information

Mr. Kerbel handed out a draft report of the State line drawdown monitoring wells review. The Bureau of Mines and Geology sponsors an annual conference that will be held June 4 and focus on this report at that conference. Most of the wells have been drilled in the last 5 years. Spacing of wells is about 1 per township. Mr. Whiteman mentioned that the Northern Cheyenne also has eight monitoring wells on their reservation. These wells were drilled in the last 3 years.

Development numbers since last Commission meeting

Ms. Lowry handed out a summary table of reservoir applications and permits by basin in the Tongue, Powder, and Little Powder River basins. A separate bar chart shows the ground-water wells that have been permitted for CBM.

Mr. Tyrrell also described that enforcement action has been taken against an operator in the Powder River basin who did not have reservoirs in compliance with SEO permits. Wyoming is continuing with their inspection program to visit wells and reservoirs to assure their compliance with their reservoir or ground-water permits.

Ms. Lowry mentioned that the Wyoming DEQ will be completing their response to the questions that Mr. Stults raised after review of the past Commission meeting.

CBNG Task Force created by Wyoming 2006 Legislature

Ms. Lowry handed out copies of the bill that established the Task Force to look at produced water over the next 2 years. The Governor of Wyoming has not yet named all of the at-large members named in the legislation. The Task Force will likely hold their initial meeting in early May 2006.

Platte River pipeline study

At Governor Freundenthal's request, a $500,000 allocation was made to review the feasibility of a pipeline to transport produced water from the Powder River CBM development to the Platte River basin. The Wyoming Water Development Commission will be taking the lead on this study. The feasibility study should take a look at any Compact effects. Montana noted that they do not agree that the Compact only deals with surface water and that surface water and ground water need to be managed as a unified resource.

Montana Environmental Review Board actions

Mr. Compton described the recent nondegradation actions that the Montana Board of Environmental Review has taken. The change included moving from a narrative standard to a numeric one for sodium-adsorption ratio (SAR) and electrical conductivity (EC). Region 8 EPA now has the standards under review. Wyoming has requested EPA not approve.

7. Wyoming's budget request and approval for joint study

Mr. Stults suggested that now is the time to start scoping out what can really be accomplished with a $200,000 study to look at water uses in the basins. Hopefully, the two States can agree upon the objective and types of data required. There also are

the institutional, political realities that need to be recognized and thought through as to how they will be addressed in the study. Mr. Stults named Mr. Dalby as Montana's representative to scope out the plan of work for the joint study.

8. Potential abandoned mine lands project—coal-seam fire

Ms. Lowry alerted the rest of the Commission that a proposal is being discussed through Wyoming's Abandoned Mine Land Program for dousing a coal-seam fire that has been burning in the Sheridan area for a number of years. The magnitude of water may be such that it could only be done during an above-average snowpack year. A consulting firm in Laramie is working on a more detailed proposal.

9. Report of meeting highlights and recommendations to Commission meeting April 13, 2006

The report should be concise and touch on all of the topics that have been discussed today that are on the full Commission agenda. As several items are now to be discussed in more detail during the Technical Committee meeting, the next Commission meeting agenda may be less detailed.

10. Set next meeting

The two States will be meeting and getting the scope for the joint study fleshed out, so the Technical Committee may want to meet the day before the Fall 2006 Commission meeting to review that scope and discuss CBM activities. Alternatively, the more detailed CBM update could only occur at the spring Commission meeting when a full Technical Committee will be held. Mr. Horak will check to see if the powerpoints and handouts from the Technical Committee meeting can be hosted on the Yellowstone Commission's Web site. All presenters were asked to send the files of their presentations to Ms. Lowry by mid-April.

The meeting adjourned at 6:10 p.m.

Submitted by Ms. Lowry, June 22, 2006.

List of attendees:

NAME	REPRESENTING	E-MAIL
Ms. Sue Lowry	Wyoming State Engineer's Office	slowry@seo.wyo.gov
Mr. Loren Smith	Wyoming State Engineer's Office	lsmith@seo.wyo.gov
Mr. Patrick Tyrrell	Wyoming Commissioner	ptyrre@seo.wyo.gov
Mr. Bill Knapp	Wyoming State Engineer's Office	bknap@seo.wyo.gov
Mr. David Willms	State of Wyoming, Attorney General's Office	dwillm@state.wy.us
Mr. Chad Hahn	NWS/NOAA Riverton	chad.hahn@noaa.gov
Mr. Tom Friedens	NWS/NOAA Riverton	tom.friders@noaa.gov
Mr. Keith Meier	NWS/NOAA Billings	keith.meier@noaa.gov
Mr. R. Scott Guenthner	Bureau of Reclamation	sguenther@gp.usbr.gov
Mr. Jason Whiteman, Sr.	Northern Cheyenne Tribe	ncnaturalresources@rangeweb.net
Mr. Chuck Dalby	Water Resources Division, Montana DNRC	cdalby@mt.gov
Mr. Roy Kaiser	NRCS/USDA Bozeman	Roy.kaiser@mt.usda.gov
Mr. Kirk Miller	USGS Wyoming Water Science Center	kmiller@usgs.gov
Mr. Wayne Berkas	USGS Montana Water Science Center	wrberkas@usgs.gov
Mr. William Horak	USGS, Chairman and Federal Representative	wfhorak@usgs.gov
Mr. Jack Stults	Montana Commissioner	jstults@mt.gov
Mr. Art Compton	Montana DEQ	acompton@mt.gov
Ms. Sally Springer	NWS/NOAA Billings	sally.springer@noaa.gov
Mr. Myron Brooks	USGS Wyoming Water Science Center	mhbrooks@usgs.gov
Mr. Art Hayes Jr.	Tongue River Water Users	browncattle@rangeweb.net
Ms. Sarah Bond	State of Montana, Attorney General's Office	sbond@mt.gov
Mr. Keith Kerbel	Water Resources Division, Montana DNRC	kkerbel@mt.gov

Appended Minutes, Technical Committee — December 5, 2006:

Yellowstone River Compact Commission, Technical Committee Discussions, Beartooth Room, Campus of MSU-Billings, Billings, Mont.

1. Introductions

The meeting began at 1:30 p.m. Mr. Moy (Montana DNRC) chaired the meeting, made introductions, and circulated a signup sheet. Ms. Sexton (Director of Montana Department of Natural Resources and Conservation and interim Montana Yellowstone Compact Commissioner), and Mr. Tubbs, the new director of the Water Resources Division of the Montana Department of Natural Resources, were introduced. The agenda was discussed and accepted.

2. Update on coal-bed methane (CBM) activities in Wyoming and Montana

Wyoming

Wyoming Compact Commissioner (and State Engineer), Mr. Tyrrell provided a description of CBM activities in the Tongue, Powder, and Little Powder River drainages of Wyoming. Two handouts were provided: one showing the number of pending and permitted reservoirs in the above mentioned drainages and the other showing the total number of CBM applications received by the SEO Ground-Water Division. He said a total of 2,993 reservoir-storage permits had been issued and there were about 2,300 small reservoirs (under 20 acre-feet) that were spread out over an area of about 14,000 square miles. Reservoir-permit inspections are now done by a full-time inspector (Mr. Shroeder) from the SEO and compliance is better than it has been in the past. Permits that are granted under the name of the coal-bed operator only are given a 15-year time limit. These reservoirs must be reclaimed after the CBM activity has ceased. If the land owner and the coal-bed operator are listed on the permit, there is no time limit applied. Any reservoir that was used for CBM production, but will be left post-production, must be reduced to a capacity of 20 acre-feet or less.

As of December 2006, there were about 15,000 to 20,000 permitted CBM wells. Fourteen wells were recently issued cease production orders because they were not permitted. The rate of CBM well drilling depends on gas prices—if the price of gas drops, well drilling will slow down. Use of CBM water for irrigation was discussed.

Mr. Tyrrell indicated that $200,000 had been awarded to the Wyoming State Geological Survey to develop a potentiometric (ground-water level) surface map and ground-water model in the Powder-Tongue basin; the study will take 2 years.

Montana

Mr. Compton (Montana Department of Environmental Quality) provided an update on CBM activities in Montana. In Montana, there are two companies producing CBM: Fidelity Exploration and Production and Pinnacle Gas. Montana has a total of 697 producing wells, with 21 shut-in and an additional 134 permitted.

Mr. Compton said that in 2006, three Wyoming producers sued the Montana Board of Environmental Review over its 2003 rulemaking that adopted numeric nondegradation standards for some streams in the Powder River drainage; the State of Wyoming has also sued Montana over the numeric standards. The Northern Cheyenne Tribe has challenged the last two CBM permits: Fidelity's proposed expansion and the Pinnacle Gas water-treatment system.

3. Water-management activities during 2006 irrigation season

Tongue River in Wyoming

Mr. Tyrrell handed out a summary of the regulation in 2006 for the Tongue and Powder River basins. The Tongue River peaked on May 11th—about 1 month earlier than past years. Mr. Tyrrell said Wyoming has Commissioners in each division to administer water rights in regulation. Water storage occurs mainly on Little Goose and Big Goose Creeks and storage rights were regulated by priority. There is no storage on main stem Tongue River.

Powder River in Wyoming

Mr. Tyrrell said there was about 18,000 acre-feet of drawdown on Lake DeSmet (about 3.5 to 4 feet) and that about 150 acre-feet per day was released to meet irrigation demands. Priorities were regulated back to 1884 on Piney Creek. He mentioned that Mid-America Energy had acquired water rights for 67,000 acre-feet out of Lake DeSmet/Healey Reservoir for CBM development.

In response to a question regarding purchase of water from Lake DeSmet for use in Montana, Mr. Tyrrell stated that no more than 1,000 acre-feet can leave the State without an export study and approval by the legislature.

Tongue River in Montana

Mr. Smith (Montana DNRC, State Water Projects Manager) provided a graph showing inflows and outflows from the Tongue River Reservoir in Montana. The reservoir did not fill this year and was about one foot below full pool. Tongue River flows also peaked in May, and the Tongue River Reservoir delivered about 90 percent of its contract water. Inflows at the State line approached zero flow in mid-July. The Tongue River was administered by water Commissioners and to supplement contract water, the Water Users Association purchased 500 acre-feet to keep the stream alive.

Powder River in Montana

Mr. Smith reported that the Powder River near State line went dry for 5-6 days in mid-July, and that 1932 was the last time that happened. In addition, the river was nearly dry for a much longer period continuing through August. Mr. Kerbel said that Powder River irrigators shared shortages as best they could.

Bighorn River in Montana

Mr. Fraser (Montana Fish, Wildlife and Parks) said that water levels on the Bighorn River, downstream from Yellowtail Dam, are maintained to try and sustain trout habitat in the main stem and side channels. Water levels were established in the 1980s and that 2,300 ft^3/s is necessary for good connectivity with side channels; below 2,000 ft^3/s (an allowable threshold for dry years), significant habitat losses begin to occur and at about 1,500 ft^3/s, over 50 percent of the fish habitat is lost. Starting in 2001, in three of the years, flows have dropped below 1,500 ft^3/s, but have been maintained at near that (1,300 ft^3/s) this past year.

Mr. Fraser also reported that the Bighorn Lake fishery declined as well. However, Bighorn Lake bass populations have been maintained throughout the drought.

Ms. Sexton said that it was anticipated there would be a compact with the Crow Tribe introduced to Congress in 2007. The State has committed $15 million to the Crow Compact (escrow fund), but the Federal contribution was small.

Bighorn River in Wyoming

Mr. Tyrrell indicated that Wyoming recreational users were experiencing problems with low lake levels and he was concerned about the lake-level management plan under the new Compact with the Crow Tribe. He asked if he could obtain a copy of the current plan, and Mr. Kerbel agreed to provide one (plan was provided to Mr. Tyrrell and Ms. Sexton at the Commission meeting the next day).

Ms. Bond (Montana Attorney General's Office) asked about Wyoming storage upstream from Bighorn Lake. Mr. Tyrrell responded that the State had about 189,000 acre-feet in Buffalo Bill Reservoir due to the 1980 enlargement, and that about 3 percent of that was under contract. Ms. Bond asked if some of that could be released to improve lake levels in Bighorn Lake, and Mr. Tyrrell responded that it could not because it would amount to meeting Montana's instream flows.

Mr. Tyrrell also said that Buffalo Bill Reservoir was increased 24 feet in 1980 and the State's share of the enlargement is 190,000 acre-feet. This storage space has not been fully contracted and is generally maintained as a buffer against continuing years of drought. Boysen Reservoir has a capacity of 751,000 acre-feet and presently is at 350,000 acre-feet.

4. New water projects in Yellowstone basin

Wyoming

Ms. Pring (Wyoming State Engineer's Office) noted that the Middle Fork Powder River Project study had been changed by the 2006 legislature to a watershed-level study; this includes a revised scope that looks at the whole watershed and not just the dam project. In addition, there is a regional pipeline water-supply study, Bighorn Regional Supply, to look at the use of ground water from some Madison wells in the Thermopolis to Greybull area.

Montana

Mr. Smith reported that there were no new projects at this time.

5. Status of joint water study

Mr. Tyrrell said that Wyoming had recently received from Montana a brief outline for a study of water uses. Wyoming had received funding from their legislature for a study, and it may be best to wait and see if Montana received funding before pursuing this further. Ms. Sexton agreed and indicated Montana had applied for funding and should know the outcome by April 2007.

6. Water-supply outlook

Mr. Moy provided a handout that showed precipitation and snowpack across Montana and revealed the general water shortages in southeastern Montana compared to the rest of the state. However, he pointed out that it was too early in the snow accumulation season to make any reliable forecasts, and that was only appropriate at the spring Technical Committee meeting.

Mr. Berkas and Mr. Miller (U.S. Geological Survey) led a discussion of how best to portray hydrologic conditions at selected streamflow stations throughout the Yellowstone basin. Several options were considered and the Technical Committee agreed to the use of box plots with a logarithmic scale and the use of departure from average plots. These two formats are to be presented in the annual report. For the April meeting, Mr. Berkas and Mr. Miller will look at 30-year averages for 1971-2000 and 1977-2006 to see if they can capture the impact of the drought of the 2000s.

The meeting was adjourned at 5:00p.m.

List of attendees:

NAME	REPRESENTING	EMAIL
Ms. Mary Sexton	Montana Acting Commissioner	msexton@mt.gov
Mr. John Tubbs	Water Resources Division, Montana DNRC	jtubbs@mt.gov
Mr. Keith Kerbel	Water Resources Division, Montana DNRC	kkerbel@mt.gov
Mr. Rich Moy	Water Resources Division, Montana DNRC	rmoy@mt.gov
Mr. Chuck Dalby	Water Resources Division, Montana DNRC	cdalby@mt.gov
Mr. Jim Robinson	Water Resources Division, Montana DNRC	jrobinson@mt.gov
Mr. Kevin Smith	Water Resources Division, Montana DNRC	ksmith@mt.gov
Ms. Sarah Bond	State of Montana, Dept. of Justice, Attorney General's Office	sbond@mt.gov
Mr. Art Compton	Montana DEQ	acompton@mt.gov
Mr. Ken Fraser	Montana DFWP	kfraser@mt.gov
Mr. Andy Brummond	Montana DFWP	abrummond@mt.gov
Mr. Pat Tyrrell	Wyoming Commissioner	ptyrre@seo.wyo.gov
Ms. Sue Lowry	Wyoming State Engineer's Office	slowry@seo.wyo.gov
Ms. Jodee Pring	Wyoming State Engineer's Office	jpring@sco.wyo.gov
Ms. Carmine LoGuidice	Wyoming State Engineer's Office	clogui@seo.wyo.gov
Mr. Loren Smith	Wyoming State Engineer's Office	lsmith@seo.wyo.gov
Mr. David Willms	State of Wyoming, Attorney General's Office	dwillm@seo.wyo.gov
Mr. Bill Knapp	Wyoming State Engineer's Office	bknap@seo.wyo.gov
Mr. William Horak	USGS, Chairman and Federal Representative	wfhorak@usgs.gov
Mr. Robert Davis	USGS Montana Water Science Center	rdavis@usgs.gov
Mr. Wayne Berkas	USGS Montana Water Science Center	wrberkas@usgs.gov
Mr. Kirk Miller	USGS Wyoming Water Science Center	kmiller@usgs.gov
Mr. Myron Brooks	USGS Wyoming Water Science Center	mhbrooks@usgs.gov
Mr. Art Hayes Jr.	Tongue River Water Users	browncattle@rangeweb.net
Mr. John Murdoch		

General Report

Cost of Operation and Budget

Work funded by the Yellowstone River Compact Commission, which to date has been primarily concerned with the collection of required hydrologic data, has been financed through cooperative arrangements whereby Montana and Wyoming each bear one-fourth of the cost, and the remaining one-half is borne by the United States. Salaries and necessary expenses of the State's and U.S. Geological Survey representatives to the Commission and the cost to other agencies of collecting hydrologic data are not considered as expenses of the Commission.

The expenses of the Commission during fiscal year 2006 were $76,000, in accordance with the budget adopted for the year.

Estimated budgets for Federal fiscal years 2007, 2008, 2009, and 2010, based on an approximate 5-percent increase per year, were tentatively adopted subject to the availability of appropriations. The budgets for the four fiscal years are summarized as follows:

October 1, 2006, to September 30, 2007 (fiscal year 2007):
Estimate for continuation of existing streamflow-gaging programs $80,000

October 1, 2007, to September 30, 2008 (fiscal year 2008):
Estimate for continuation of existing streamflow-gaging programs $84,000

October 1, 2008, to September 30, 2009 (fiscal year 2009):
Estimate for continuation of existing streamflow-gaging programs $88,200

October 1, 2009, to September 30, 2010 (fiscal year 2010):
Estimate for continuation of existing streamflow-gaging programs $92,600

Streamflow-Gaging Station Operation

Operation of streamflow-gaging stations at the measuring sites specified in the Yellowstone River Compact continued in water year 2006 and satisfactory records were collected at each station. Locations of streamflow-gaging stations, along with reservoir-content stations, are shown on a map of the Yellowstone River basin at the end of this report.

For measurement sites, horizontal coordinate information (latitude and longitude) is referenced to the North American Datum of 1927 (NAD 27). The gage datums and elevations listed in this report are referenced to the National Geodetic Vertical Datum of 1929 (NGVD 29).

During water year 2006, annual streamflow was below normal[2] at all streamflow-gaging stations. The rank of the annual streamflow, with the lowest annual streamflow having a rank of 1, is displayed in the following table:

Station number	Streamflow-gaging station	Percent of average streamflow for water year 2006[1]	Rank of annual streamflow		Year of lowest annual streamflow (rank equals 1)	Number of years of annual record
			2006 water year	2005 water year		
06208500	Clarks Fork Yellowstone River at Edgar, Mont., minus diversions to White Horse Canal	79	11	12	2001	68
06294500	Bighorn River above Tullock Creek, near Bighorn, Mont., minus Little Bighorn River near Hardin, Mont., adjusted for change in contents in Bighorn Lake	55	10	9	2003	40
06308500	Tongue River at Miles City, Mont.	37	5	25	1961	63
06326500	Powder River near Locate, Mont.	47	9	24	2004	68

[1]Average is based on period of record at station.

[2]The "normal" range defined in this report is 80 to 120 percent of average.

Tabulation of streamflow records for water year 2006 and graphical comparisons of statistical distribution of monthly and annual streamflow, and annual departures from mean annual streamflow are provided in the section "Summary of discharge for Yellowstone River Compact streamflow-gaging stations." The tabulated streamflow records do not account for depletions for irrigation and other uses unless otherwise noted.

Diversions

No diversions were regulated by the Commission during water year 2006.

Reservoir Contents

Reservoirs Completed after January 1, 1950

Month-end and year-end usable contents and a description of these reservoirs are given in the section "Month-end contents for Yellowstone River Compact reservoirs completed after January 1, 1950." Boysen Reservoir, located on the Wind River and operated by the Bureau of Reclamation, began the water year with 591,900 acre-feet in usable storage and ended the water year with 407,700 acre-feet. Anchor Reservoir began the water year with 269 acre-feet in usable storage and ended the water year with 233 acre-feet. Bighorn Lake, a Bureau of Reclamation storage project on the Bighorn River that is the largest in the Yellowstone River basin, contained 984,500 acre-feet of usable storage at the beginning of the water year and 745,800 acre-feet at the end of the water year. Daily usable contents of Bighorn Lake ranged from 720,000 acre-feet on September 2, 2006, to 1,009,000 acre-feet on October 16, 2005.

Reservoirs Existing on January 1, 1950

As a matter of record and general information, month-end usable contents data are given later in the report for four reservoirs in existence on January 1, 1950, upstream from the points of measurement. The reservoirs are Bull Lake, Pilot Butte Reservoir, Buffalo Bill Reservoir, and Tongue River Reservoir. These data are pertinent to allocation under Article V, Section C, Item 3 of the Compact. Month-end and year-end usable contents of these reservoirs are given in the section "Month-end contents for Yellowstone River Compact reservoirs existing on January 1, 1950."

The storage capacity of Buffalo Bill Reservoir was increased in 1992 from 456,600 acre-feet to 644,540 acre-feet (listed as 646,565 acre-feet by Bureau of Reclamation). The storage capacity of Tongue River Reservoir was increased in 1999 from 68,000 acre-feet to 79,070 acre-feet.

Annual Contents of Reservoirs

Information on reservoir contents at the end of the current and previous water years for the 7 reservoirs listed above plus 23 additional reservoirs was compiled at the request of the Commission. The information is provided in the section "Water-year-end contents for Yellowstone River Compact reservoirs or lakes."

Summary of Discharge for Yellowstone River Compact Streamflow-Gaging Stations

06208500 Clarks Fork Yellowstone River at Edgar, Mont.

LOCATION.--Lat 45°27'58", long 108°50'35" referenced to North American Datum of 1927, in SE ¼ SE ¼ SE ¼ sec. 23, T.4 S., R.23 E., Carbon County, Hydrologic Unit 10070006, on right bank 400 ft downstream from county bridge, 0.5 mi east of Edgar, 6 mi upstream from Rock Creek, and at river mile 22.1.

DRAINAGE AREA.--2,022 mi².

PERIOD OF RECORD.--July 1921 to September 1969, October 1986 to current year.

REVISED RECORDS.—Water Supply Paper (WSP) 1509: 1924; 1932, maximum discharge (M). WSP 1729: Drainage area. Water Data Report (WDR) MT-04-1: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 3,460 ft, referenced to the National Geodetic Vertical Datum of 1929 (NGVD 29). Prior to Aug. 31, 1953, nonrecording gage located at the same site and elevation.

REMARKS.--Records are good except those for the estimated daily discharges, which are poor. Diversions for irrigation include about 41,500 acres, of which about 840 acres lie downstream from the station. In addition, about 6,300 acres of land upstream from the station are irrigated by diversions from the adjoining Rock Creek basin. U.S. Geological Survey satellite telemeter is located at the station. Several unpublished observations of water temperature and specific conductance were made during the year. **Discharge values given herein have the diversions to White Horse Canal subtracted.**

Table 1. Daily mean discharge for Clarks Fork Yellowstone River at Edgar, Mont., minus diversions to Whitehorse Canal, October 2005 to September 2006.

[Discharge is in cubic feet per second. Abbreviations: e, estimated; Max, maximum; Min, minimum; Acre-ft; acre-feet; WY, water year. Symbol: --, no data]

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	448	505	e420	e460	388	415	314	839	1,780	1,540	179	81
2	446	494	e390	e450	372	395	305	863	1,790	1,620	159	96
3	479	501	e390	467	377	357	294	900	2,320	1,620	155	95
4	566	499	e390	434	371	348	294	810	3,080	1,510	145	98
5	684	515	e390	428	374	345	298	833	3,800	1,380	132	91
6	739	514	e380	415	375	339	325	748	4,470	1,500	113	90
7	718	518	e370	431	361	339	359	889	4,490	1,820	113	93
8	688	569	e400	427	362	333	412	1,000	4,650	1,760	96	89
9	659	608	e440	428	391	338	401	1,060	5,090	1,430	94	88
10	636	583	e460	409	365	324	387	932	5,150	1,160	94	88
11	640	569	e470	392	297	298	398	744	4,820	1,060	86	85
12	626	634	e480	434	e330	298	390	611	3,970	893	90	90
13	605	639	e470	413	e350	297	371	602	3,740	805	87	90
14	602	590	e460	394	e350	315	365	972	4,120	785	90	88
15	591	574	e450	427	e340	320	431	1,570	3,960	702	94	115
16	579	529	e440	409	e240	327	476	2,170	3,200	646	88	319
17	565	484	e430	403	e170	311	529	2,830	2,540	588	88	525
18	565	578	e400	340	e240	312	596	3,490	2,310	530	84	460
19	559	552	e400	422	e300	334	549	4,380	2,270	438	82	426
20	565	551	e410	394	e370	317	483	5,030	2,230	415	81	391

Table 1. Daily mean discharge for Clarks Fork Yellowstone River at Edgar, Mont., minus diversions to Whitehorse Canal, October 2005 to September 2006.—Continued

[Discharge is in cubic feet per second. Abbreviations: e, estimated; Max, maximum; Min, minimum; Acre-ft; acre-feet; WY, water year. Symbol: --, no data]

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
21	560	527	e430	380	e370	312	452	5,230	2,130	379	85	434
22	557	524	e450	387	e380	303	445	5,390	2,000	353	79	467
23	552	524	e470	407	e380	301	509	4,860	1,780	330	79	636
24	543	517	e460	391	e390	307	725	4,340	1,640	295	87	594
25	538	505	e450	404	e380	306	633	4,120	1,630	314	78	505
26	536	509	e450	394	e390	306	527	4,350	1,640	311	66	489
27	522	521	e450	395	e420	311	467	4,540	1,640	297	74	480
28	510	500	e460	387	418	308	472	4,380	1,640	263	79	465
29	514	480	e450	367	--	306	512	3,600	1,610	227	70	467
30	519	447	e440	374	--	316	588	2,740	1,520	211	69	461
31	507	--	e470	377	--	321	--	2,130	--	212	70	--
Total	17,818	16,060	13,420	12,640	9,851	10,059	13,307	76,953	87,010	25,394	2,986	8,496
Mean	575	535	433	408	352	324	444	2,482	2,900	819	96.3	283
Max	739	639	480	467	420	415	725	5,390	5,150	1,820	179	636
Min	446	447	370	340	170	297	294	602	1,520	211	66	81
Acre-ft	35,340	31,860	26,620	25,070	19,540	19,950	26,390	152,600	172,600	50,370	5,920	16,850

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1921–2006, BY WATER YEAR (WY)*

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	533	502	409	352	350	364	555	2,101	4,017	1,988	595	469
Max	1,010	777	593	512	584	554	1,398	5,578	7,256	4,771	1,541	1,395
(WY)	(1942)	(1928)	(1996)	(1997)	(1963)	(1943)	(1943)	(1928)	(1996)	(1943)	(1951)	(1941)
Min	298	310	217	200	180	220	123	757	1,768	290	49.5	156
(WY)	(1956)	(1936)	(1937)	(1922)	(1922)	(1924)	(1961)	(1968)	(1987)	(1988)	(1988)	(1988)

SUMMARY STATISTICS

	Calendar Year 2005		Water Year 2006		Water Years 1921–2006*	
Annual total	298,937		293,994			
Annual mean	819		805		1,021	
Highest annual mean					1,623	1997
Lowest annual mean					644	2001
Highest daily mean	5,700	May 22	5,390	May 22	10,600	Jun 02, 1936
Lowest daily mean	115	Sep 11	66	Aug 26	37	May 11, 1961
Annual seven-day minimum	124	Sep 7	72	Aug 25	43	Apr 18, 1961
Maximum peak flow			5,790	May 22	11,100	Jun 12, 1997
Maximum peak stage			6.88	May 22	9.30	Jun 12, 1997
Instantaneous low flow					36	Apr 22, 1961
Annual runoff (acre-ft)	592,900		583,100		739,400	
10 percent exceeds	2,200		1,890		2,810	
50 percent exceeds	430		446		466	
90 percent exceeds	234		96		270	

*During period of operation (water years 1921–69, 1987–2006).

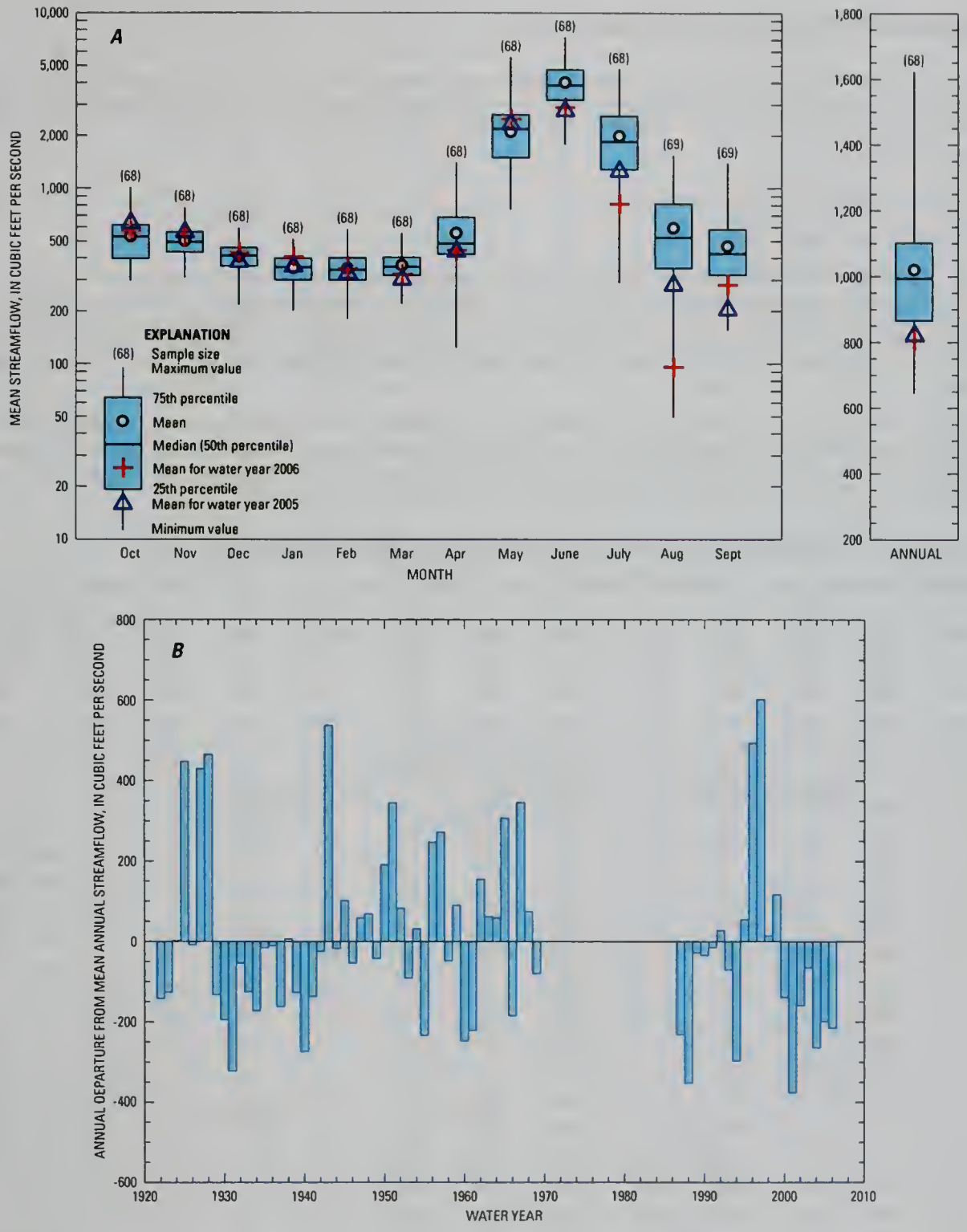


Figure 1. Streamflow data for the Clarks Fork Yellowstone River at Edgar, Mont. (06208500), minus diversions to Whitehorse Canal, water years 1922–2006: *A*, Statistical distribution of monthly and annual streamflow; *B*, Annual departure from the mean annual streamflow.

06294000 Little Bighorn River near Hardin, Mont.

LOCATION.--Lat 45°44'09", long 107°33'24" referenced to North American Datum of 1927, in SE ¼ NE ¼ NE ¼ sec. 19, T.1 S., R.34 E., Big Horn County, Hydrologic Unit 10080016, on left bank 50 ft downstream from bridge on Sarpy Road, 0.2 mi upstream from terminal wasteway of Agency Canal, 0.6 mi upstream from mouth, and 2.3 mi east of Hardin.

DRAINAGE AREA.--1,294 mi².

PERIOD OF RECORD.--June 1953 to current year.

REVISED RECORDS.--WDR MT-86-1: 1978.

GAGE.--Water-stage recorder. Elevation of gage is 2,882.29 ft (NGVD 29) (levels by U.S. Army Corps of Engineers). Prior to Oct. 7, 1953, nonrecording gage located at site 0.4 mi downstream. Oct. 7, 1953 to May 6, 1963, water-stage recorder located at site 0.3 mi downstream. May 6, 1963 to Nov. 6, 1963, nonrecording gage located at site 0.4 mi downstream. All locations had different elevations. Nov. 7, 1963 to Aug. 15, 1976, water-stage recorder located at site 35 ft downstream at present elevation. Aug. 15, 1976 to Sept. 30, 1979, water-stage recorders were located on each bank downstream from Sarpy Road bridge and were used depending on control conditions.

REMARKS.--Records are good except those for estimated daily discharges, which are poor. Flow partly regulated by Willow Creek Reservoir (capacity 23,000 acre-ft). Diversions for irrigation of 20,980 acres occur upstream from station. **Discharge values given herein include flow of terminal wasteway of Agency Canal.** U.S. Geological Survey satellite telemeter is located at the station. Several unpublished observations of water temperature and specific conductance were made during the year.

Table 2. Daily mean discharge for Little Bighorn River near Hardin, Mont., October 2005 to September 2006.

[Discharge is in cubic feet per second. Abbreviations: e, estimated; Max, maximum; Min, minimum; Acre-ft; acre-feet; WY, water year. Symbol: --, no data]

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	90	109	e100	e110	e110	e120	231	151	352	47	3.3	5.3
2	89	108	e100	e110	e110	e120	240	155	296	35	5.3	7.0
3	99	108	e100	e110	e110	e120	208	159	252	36	6.6	23
4	109	110	e100	e110	e110	e120	184	164	232	35	5.9	29
5	147	109	e90	e110	e110	e120	168	165	220	32	4.6	31
6	162	109	e90	e110	e100	e120	164	164	200	52	6.5	26
7	170	108	e80	e110	e100	e120	163	160	186	37	7.2	22
8	168	107	e90	e110	e95	119	153	167	124	30	6.0	24
9	176	110	e100	e110	e90	112	151	180	137	48	5.9	28
10	170	113	e100	e110	e80	108	144	195	139	53	4.0	27
11	162	110	e100	e110	e90	105	140	195	153	32	1.2	27
12	151	116	e100	e110	e95	e100	136	190	161	26	2.0	26
13	140	122	e100	e110	e95	97	135	179	166	22	2.5	25
14	129	123	e100	e110	e95	98	133	173	158	16	2.1	25
15	122	117	e100	e110	e95	99	131	175	172	15	1.7	26
16	115	118	e100	e110	e90	100	133	184	143	19	1.6	40
17	112	113	e100	e110	e80	104	138	217	128	20	1.7	56
18	110	113	e90	e110	e80	100	155	258	136	32	2.3	93
19	111	125	e90	e110	e90	105	165	320	135	18	1.7	113
20	109	123	e90	e110	e110	108	178	402	91	12	1.4	100
21	108	126	e100	e110	e110	108	169	463	76	15	1.2	85
22	108	122	e100	e110	e110	105	169	513	78	17	1.1	87

Table 2. Daily mean discharge for Little Bighorn River near Hardin, Mont., October 2005 to September 2006.—Continued

[Discharge is in cubic feet per second. Abbreviations: e, estimated; Max, maximum; Min, minimum; Acre-ft; acre-feet; WY, water year. Symbol: --, no data]

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
23	108	118	e100	e110	e110	101	163	545	72	15	1.1	105
24	109	116	e100	e110	e110	100	173	550	72	16	2.1	127
25	109	114	e100	e110	e110	101	182	759	79	15	2.7	148
26	109	115	e110	e110	e130	106	170	720	78	8.9	5.3	122
27	109	e110	e110	e110	e130	112	165	663	72	6.5	4.8	98
28	109	e110	e110	e110	e130	115	165	631	65	3.7	4.5	88
29	110	e100	e110	e110	--	119	159	576	64	4.1	1.3	93
30	111	e100	e110	e110	--	151	152	497	64	3.3	2.1	93
31	108	--	e110	e110	--	171	--	416	--	2.6	3.1	--
Total	3,839	3,402	3,080	3,410	2,875	3,484	4,917	10,286	4,301	724.1	102.8	1,799.3
Mean	124	113	99.4	110	103	112	164	332	143	23.4	3.32	60.0
Max	176	126	110	110	130	171	240	759	352	53	7.2	148
Min	89	100	80	110	80	97	131	151	64	2.6	1.1	5.3
Acre-ft	7,610	6,750	6,110	6,760	5,700	6,910	9,750	20,400	8,530	1,440	204	3,570

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1954–2006, BY WATER YEAR (WY)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	151	150	133	137	195	301	303	593	786	253	113	124
Max	276	248	223	366	610	987	748	2,852	1,981	1,333	382	267
(WY)	(1979)	(1979)	(1979)	(1975)	(1971)	(1972)	(1965)	(1978)	(1968)	(1975)	(1975)	(1978)
Min	60.7	82.6	65.6	50.5	68.5	71.1	54.8	71.9	117	8.5	2.5	19.1
(WY)	(2002)	(2002)	(2002)	(2005)	(2005)	(2002)	(1961)	(1961)	(1961)	(1961)	(1961)	(1960)

SUMMARY STATISTICS

	Calendar Year 2005		Water Year 2006		Water Years 1954–2006	
Annual total	50,760		42,220.2			
Annual mean	139		116		270	
Highest annual mean					676	1975
Lowest annual mean					70.4	1961
Highest daily mean	1,060	May 13	759	May 25	15,800	May 20, 1978
Lowest daily mean	23	Jul 24	1.1	Aug 22	.30	Aug 5, 1961
Annual seven-day minimum	31	Aug 5	1.5	Aug 17	.40	Aug 3, 1961
Maximum peak flow			831	May 25	[a]22,600	May 19, 1978
Maximum peak stage			3.94	May 25	[b]11.78	Mar 20, 1960
Instantaneous low flow					[c].20	Aug 7, 1961
Annual runoff (acre-ft)	100,700		83,740		195,400	
10 percent exceeds	344		174		581	
50 percent exceeds	90		110		160	
90 percent exceeds	39		6.8		70	

[a] Gage height, 11.20 feet.

[b] Site and datum then in use.

[c] Result of discharge measurement.

06294500 Bighorn River above Tullock Creek, near Bighorn, Mont.

LOCATION.--Lat 46°07'29", long 107°28'06" referenced to North American Datum of 1927, in SE ¼ SE ¼ NE ¼ sec. 3, T.4 N., R.34 E., Treasure County, Hydrologic Unit 10080015, on right bank 1.9 mi upstream from Tullock Creek, 3.6 mi southwest of Bighorn, 4.5 mi southeast of Custer, and at river mile 3.0.

DRAINAGE AREA.--22,414 mi². Area at site used Oct. 7, 1955, to Sept. 30, 1981, 22,885 mi².

PERIOD OF RECORD.--October 1981 to current year. Previously published as "06294700 Bighorn River at Bighorn, MT" from 1956-81, and as "06294700 Bighorn River near Custer" from 1945-55. Flows are equivalent at all sites.

GAGE.--Water-stage recorder. Elevation of gage is 2,700 ft (NGVD 29). May 11, 1945 to Dec. 6, 1945, nonrecording gage, and Dec. 7, 1945 to Oct. 6, 1955, water-stage recorder located 1.7 mi upstream at different elevation. Oct. 7, 1955 to Sept. 30, 1981, located at site 2.3 mi downstream at different elevation.

REMARKS.--Water-discharge records are good except those for estimated daily discharges, which are poor. Flow is regulated by Bighorn Lake beginning November 1965 (usable capacity, 1,312,000 acre-ft). Major regulation occurred prior to November 1965 by 14 reservoirs in Wyoming and 1 in Montana with combined usable capacity of about 1,400,000 acre-ft. Diversion for irrigation of about 445,200 acres occurs upstream from station. U.S. Army Corps of Engineers satellite telemeter is located at the station. Several unpublished observations of water temperature and specific conductance were made during the year.

Table 3. Daily mean discharge for Bighorn River above Tullock Creek, near Bighorn, Mont., October 2005 to September 2006.

[Discharge is in cubic feet per second. Abbreviations: e, estimated; Max, maximum; Min, minimum; Acre-ft; acre-feet; WY, water year. Symbol: --, no data]

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	2,390	2,680	2,990	2,660	2,590	2,330	3,570	2,580	2,430	2,190	e1,550	1,310
2	2,330	2,710	2,530	2,620	2,580	2,310	3,010	2,460	2,390	2,130	1,560	1,290
3	2,410	2,740	2,520	2,610	2,610	2,330	2,820	2,530	2,360	2,200	1,560	1,280
4	2,450	2,880	2,550	2,600	2,570	2,350	2,640	2,520	2,370	2,220	1,570	1,290
5	2,710	3,130	e2,600	2,600	2,630	2,320	2,570	2,500	2,370	2,270	1,580	1,270
6	2,610	3,180	e2,600	2,600	2,610	2,310	2,680	2,440	2,340	2,220	1,580	1,270
7	2,620	3,260	e2,600	2,610	2,600	2,280	2,800	2,440	2,300	2,190	1,610	1,250
8	2,550	3,310	e2,600	2,630	2,570	2,260	2,720	2,450	2,260	2,180	1,560	1,260
9	2,660	3,100	e2,600	2,610	2,580	2,280	2,700	2,450	2,270	2,070	1,550	1,200
10	2,600	2,540	2,650	2,610	2,560	2,340	2,680	2,500	2,380	2,040	1,540	1,190
11	2,520	2,560	2,640	2,630	2,470	2,340	2,660	2,510	2,380	1,990	1,510	1,160
12	2,520	2,640	2,650	2,630	2,530	2,330	2,650	2,600	2,360	1,860	1,530	1,140
13	2,480	2,700	2,690	2,610	2,540	2,330	2,650	2,630	2,330	1,770	1,570	1,340
14	2,480	2,700	2,740	2,640	2,590	2,320	2,650	2,540	2,310	1,650	1,580	1,560
15	2,460	2,770	2,720	2,640	2,560	2,330	2,630	2,530	2,360	1,570	1,510	1,750
16	2,470	2,790	2,360	2,630	2,470	2,340	2,650	2,490	2,310	1,570	1,470	1,870
17	2,450	2,850	2,370	2,620	e2,400	2,320	2,690	2,420	2,330	1,530	1,500	1,960
18	2,460	2,780	e2,400	2,630	e2,400	2,320	2,810	2,390	2,330	1,500	1,630	1,900
19	2,470	2,600	e2,400	2,620	e2,400	2,350	2,770	2,430	2,350	1,520	1,560	1,940
20	2,490	2,600	e2,400	2,610	e2,400	2,360	2,800	2,600	2,320	1,540	1,530	1,940
21	2,500	2,650	2,380	2,600	2,340	2,330	2,810	2,780	2,290	1,600	1,500	1,780
22	2,510	2,680	2,390	2,570	2,270	2,330	2,740	2,830	2,250	1,530	1,390	1,760
23	2,540	2,740	2,460	2,600	2,280	2,310	2,740	2,900	2,260	1,510	1,360	1,830

Table 3. Daily mean discharge for Bighorn River above Tullock Creek, near Bighorn, Mont., October 2005 to September 2006. —Continued

[Discharge is in cubic feet per second. Abbreviations: e, estimated; Max, maximum; Min, minimum; Acre-ft; acre-feet; WY, water year. Symbol: --, no data]

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
24	2,560	2,770	2,540	2,610	2,280	2,310	2,770	2,980	2,250	1,520	1,350	1,830
25	2,580	2,820	2,620	2,590	2,280	2,310	2,750	3,110	2,310	1,500	1,320	1,840
26	2,620	2,880	2,610	2,620	2,280	2,350	2,720	3,250	2,330	1,500	1,360	1,730
27	2,600	2,980	2,620	2,620	2,300	2,360	2,680	2,880	2,320	1,470	1,360	1,670
28	2,510	2,990	2,610	2,620	2,310	2,360	2,650	2,820	2,350	1,480	1,360	1,680
29	2,530	2,970	2,640	2,610	--	2,390	2,630	2,720	2,370	1,510	1,320	1,620
30	2,590	2,980	2,650	2,580	--	2,690	2,610	2,610	2,330	1,530	1,300	1,590
31	2,630	--	2,630	2,620	--	2,990	--	2,490	--	e1,540	1,290	--
Total	78,300	84,980	79,760	81,050	69,000	73,180	82,250	81,380	69,910	54,900	45,960	46,500
Mean	2,526	2,833	2,573	2,615	2,464	2,361	2,742	2,625	2,330	1,771	1,483	1,550
Max	2,710	3,310	2,990	2,660	2,630	2,990	3,570	3,250	2,430	2,270	1,630	1,960
Min	2,330	2,540	2,360	2,570	2,270	2,260	2,570	2,390	2,250	1,470	1,290	1,140
Acre-ft	155,300	168,600	158,200	160,800	136,900	145,200	163,100	161,400	138,700	108,900	91,160	92,230

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1945 - 2006, BY WATER YEAR (WY)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	3,141	3,217	3,077	2,967	3,122	3,590	3,453	4,248	6,716	5,158	2,783	2,776
Max	5,546	5,599	4,907	5,478	5,314	6,580	7,881	9,102	15,180	19,090	6,972	4,952
(WY)	(1972)	(1974)	(1968)	(1968)	(1971)	(1972)	(1997)	(1947)	(1948)	(1967)	(1997)	(1973)
Min	1,103	1,223	1,280	1,382	1,544	908	1,063	1,304	1,050	707	868	1,009
(WY)	(2003)	(1978)	(1961)	(1961)	(2003)	(1966)	(1966)	(1966)	(1966)	(1960)	(1961)	(1966)

SUMMARY STATISTICS

	Calendar Year 2005		Water Year 2006		Water Years 1945 - 2006	
Annual total	911,790		847,170			
Annual mean	2,498		2,321		3,670	
Highest annual mean					5,594	1997
Lowest annual mean					1,474	2003
Highest daily mean	7,970	Jun 29	3,570	Apr 1	50,000	May 20, 1978
Lowest daily mean	1,320	May 3	1,140	Sep 12	400	Apr 4, 1967
Annual seven-day minimum	1,390	May 2	1,210	Sep 6	528	May 6, 1961
Maximum peak flow			[a]3,750	Apr 1	[c]59,200	May 20, 1978
Maximum peak stage			[b]2.95	Dec 9	[d]14.21	Apr 2, 1965
Instantaneous low flow					[c]275	Nov 15, 1959
Annual runoff (acre-ft)	1,809,000		1,680,000		2,659,000	
10 percent exceeds	3,320		2,760		6,180	
50 percent exceeds	2,150		2,460		3,090	
90 percent exceeds	1,570		1,520		1,600	

Table 3. Daily mean discharge for Bighorn River above Tullock Creek, near Bighorn, Mont., October 2005 to September 2006.—Continued

[Discharge is in cubic feet per second. Abbreviations: e, estimated; Max, maximum; Min, minimum; Acre-ft; acre-feet; WY, water year. Symbol: --, no data]

SUMMARY STATISTICS				
	Water Years 1946–1961*		Water Years 1967–2006**	
Annual mean	3,358		3,672	
Highest annual mean	5,501	1947	5,594	1997
Lowest annual mean	1,623	1961	1,474	2003
Highest daily mean	25,700	Jun 23, 1947	50,000	May 20, 1978
Lowest daily mean	462	May 12, 1962	400	Apr 4, 1967
Annual seven-day minimum	528	May 6, 1961	843	Nov 18, 1977
Maximum peak flow	[f]26,200	Jun 24, 1947	59,200	May 20, 1978
Maximum peak stage	10.65	May 24, 1947	14.15	May 20, 1978
Instantaneous low flow	[e]275	Nov 15, 1959		
Annual runoff (acre-ft)	2,578,000		2,661,000	

* Prior to construction of Yellowtail Dam.

** After completion of Yellowtail Dam.

[a] Gage height, 2.59 feet.

[b] Backwater from ice.

[c] Gage height, 14.15 feet, at different site and datum.

[d] Result of ice jam, at different site and datum.

[e] Prior to construction of Yellowtail Dam.

[f] Gage height, 8.79 feet, at different site and datum.

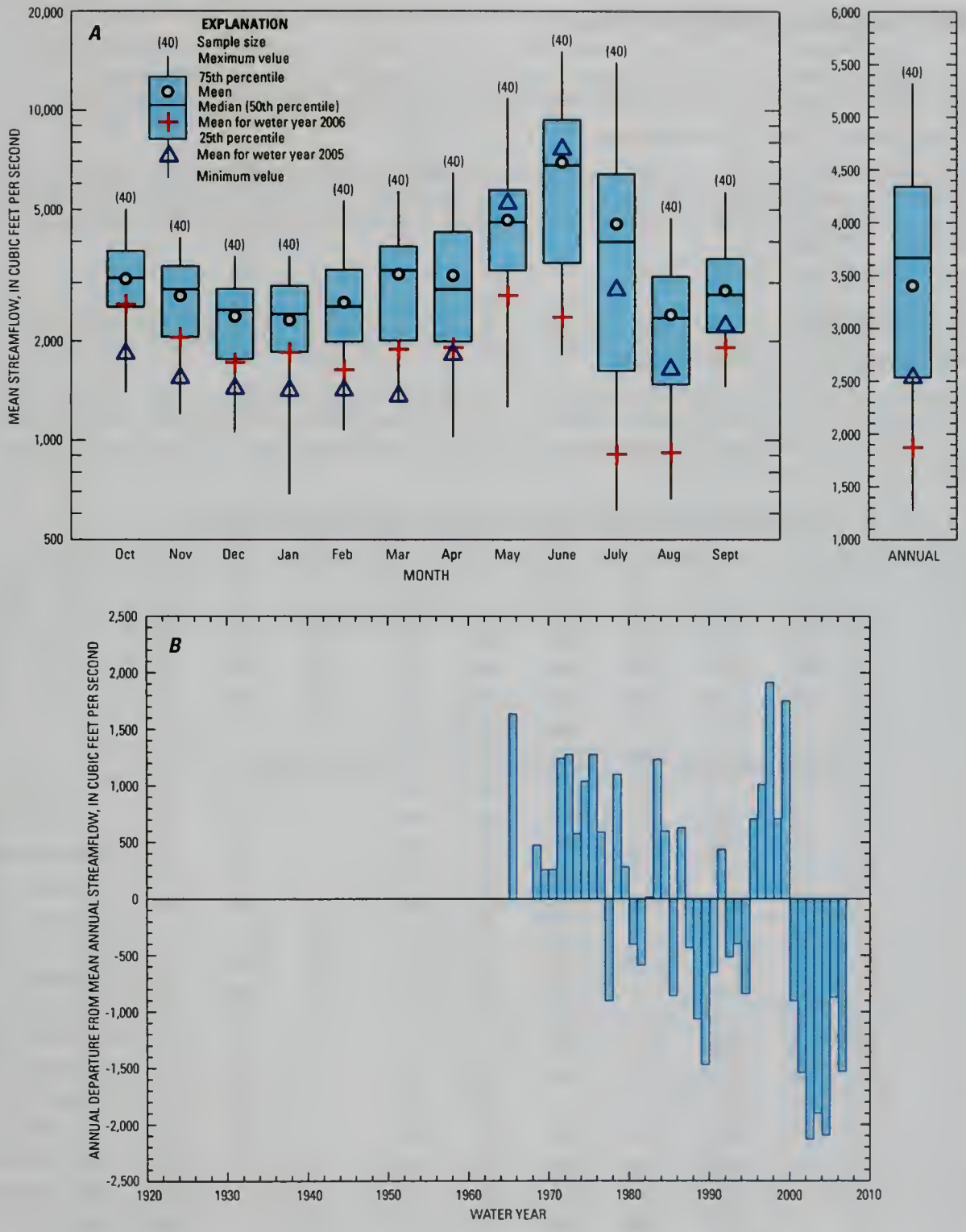


Figure 2. Streamflow data for Bighorn River above Tullock Creek, near Bighorn, Mont. (06294500), minus Little Bighorn River near Hardin, Mont. (0694000); adjusted for change in contents in Bighorn Lake, water years 1965–2006: *A*, Statistical distribution of monthly and annual streamflow; *B*, Annual departure from the mean annual streamflow.

06308500 Tongue River at Miles City, Mont.

LOCATION.--Lat 46°23'05", long 105°50'41" referenced to North American Datum of 1927, in SE ¼ SE ¼ SE ¼ sec. 4, T.7 N., R.47 E., Custer County, Hydrologic Unit 10090102, on right bank 1.5 mi south of Miles City and at river mile 2.3.

DRAINAGE AREA.--5,397 mi². Area at site used prior to Oct. 4, 1995, 5,379 mi².

PERIOD OF RECORD.--April 1938 to April 1942, April 1946 to current year. Published as "near Miles City" April 1938 to April 1942. Not equivalent to records published as "near Miles City" May 1929 to October 1932. April 1946 to Oct. 4, 1995, located at site 2.5 mi upstream from present site. Flows at present site are equivalent with flows at site operated from 1946. Monthly discharge only for some periods, published in WSP 1309.

REVISED RECORDS.-- WSP 1729: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 2,360 ft (NGVD 29). April 1938 to April 1942, nonrecording gage located at site 8 mi upstream from present site at different elevation. April 1946 to Sept. 30, 1963, located at elevation 1.00 ft higher than present site. Oct. 4, 1995, gage was moved 2.5 mi downstream.

REMARKS.--Water-discharge records are good except those for estimated daily discharges, which are poor. Flow is regulated by Tongue River Reservoir (station 06307000) with capacity of 79,070 acre-ft, and many small reservoirs in Wyoming with combined capacity about 15,000 acre-ft. Diversions for irrigation include about 100,800 acres upstream from station. U.S. Army Corps of Engineers satellite telemeter is located at the station.

Table 4. Daily mean discharge for Tongue River at Miles City, Mont., October 2005 to September 2006.

[Discharge is in cubic feet per second. Abbreviations: e, estimated; Max, maximum; Min, minimum; Acre-ft; acre-feet; WY, water year. Symbol: --, no data]

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	79	219	e110	e230	e200	e150	261	122	28	7.9	16	7.5
2	92	218	e130	e230	e200	e160	234	119	28	11	16	8.2
3	113	219	e140	e230	e190	e160	342	115	20	17	17	7.4
4	156	220	e170	e230	e180	e160	289	114	21	26	15	7.1
5	e330	242	e160	e230	e180	e160	185	114	19	24	17	7.2
6	440	243	e150	e230	e170	e160	161	113	14	25	12	8.1
7	482	245	e140	e230	e160	e160	e600	112	13	25	12	7.1
8	466	247	e160	e240	e150	e160	e300	123	e80	19	12	6.9
9	470	246	e180	e250	e140	e150	e200	99	e1,300	18	14	7.2
10	874	245	e230	e270	e140	e150	e160	27	e500	20	14	7.0
11	447	246	e230	e270	e130	e140	e150	32	e300	19	13	8.0
12	320	248	e230	e270	e130	e140	e140	134	e190	21	11	13
13	256	231	e230	e270	e130	e140	140	63	133	19	13	13
14	241	226	e230	e280	e140	e130	132	62	97	14	15	11
15	236	224	e210	e250	e140	138	127	62	67	13	18	8.9
16	232	e220	e200	e240	e120	139	125	44	44	16	16	8.4
17	232	e220	e180	e240	e90	141	e130	32	24	14	15	12
18	231	224	e160	e240	e100	138	e200	24	14	14	15	17
19	233	220	e180	e240	e110	137	651	17	23	15	16	22
20	234	218	e220	e240	e120	134	1,360	15	34	16	14	28
21	236	217	e230	e240	e140	125	616	14	21	18	11	17
22	245	216	e240	e240	e150	127	312	13	17	12	10	29
23	222	214	e240	e230	e150	129	219	14	15	11	11	152

Table 4. Daily mean discharge for Tongue River at Miles City, Mont., October 2005 to September 2006.—Continued

[Discharge is in cubic feet per second. Abbreviations: e, estimated; Max, maximum; Min, minimum; Acre-ft; acre-feet; WY, water year. Symbol: --, no data]

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
24	218	214	e240	e230	e150	126	170	1,030	14	12	11	130
25	218	213	e240	e230	e140	122	146	711	15	13	11	51
26	218	214	e240	e220	e150	122	134	131	16	18	11	32
27	218	e200	e240	e220	e150	128	128	55	16	16	9.5	26
28	218	e170	e240	e210	e150	128	123	41	12	15	9.3	59
29	218	e150	e240	e210	--	124	121	39	9.4	14	8.9	61
30	218	e130	e230	e210	--	140	119	28	10	10	8.6	50
31	218	--	e230	e200	--	158	--	28	--	12	7.5	--
Total	8,611	6,559	6,250	7,350	4,100	4,376	7,975	3,647	3,094.4	504.9	399.8	822.0
Mean	278	219	202	237	146	141	266	118	103	16.3	12.9	27.4
Max	874	248	240	280	200	160	1,360	1,030	1,300	26	18	152
Min	79	130	110	200	90	122	119	13	9.4	7.9	7.5	6.9
Acre-ft	17,080	13,010	12,400	14,580	8,130	8,680	15,820	7,230	6,140	1,000	793	1,630

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1938–2006, BY WATER YEAR (WY)*

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	239	248	187	191	270	515	425	674	1,232	449	175	193
Max	694	585	423	529	1,794	1,783	1,693	2,983	3,825	2,207	700	599
(WY)	(1972)	(1942)	(1950)	(1999)	(1971)	(1971)	(1965)	(1978)	(1978)	(1975)	(1975)	(1968)
Min	10.3	60.9	68.0	65.3	74.5	74.5	12.5	29.2	41.9	12.6	6.08	2.40
(WY)	(1961)	(1989)	(1990)	(2005)	(2003)	(2002)	(1961)	(1961)	(2002)	(1960)	(1949)	(1938)

SUMMARY STATISTICS

	Calendar Year 2005		Water Year 2006		Water Years 1938–2006*	
Annual total	132,808		53,689.1			
Annual mean	364		147		396	
Highest annual mean					986	1978
Lowest annual mean					57.2	1961
Highest daily mean	2,880	Jun 9	1,360	Apr 20	9,290	Jun 15, 1962
Lowest daily mean	12	May 5	6.9	Sep 8	0.00	Jul 9, 1940
Annual seven-day minimum	49	Jan 10	7.2	Sep 4	0.00	Jul 9, 1940
Maximum peak flow			2,630	May 24	[a]13,300	Jun 15, 1962
Maximum peak stage			6.39	May 24	[b]13.27	Mar 19, 1960
Instantaneous low flow					0.00	Jul 9, 1940
Annual runoff (acre-ft)	263,400		106,500		287,200	
10 percent exceeds	1,270		245		900	
50 percent exceeds	166		138		218	
90 percent exceeds	78		12		63	

* During period of record (April 1938 to April 1942, April 1946 to 2006).

[a] Gage height, 11.33 feet, at previous site and datum.

[b] Ice jam, at previous site and datum used from 1963–95.

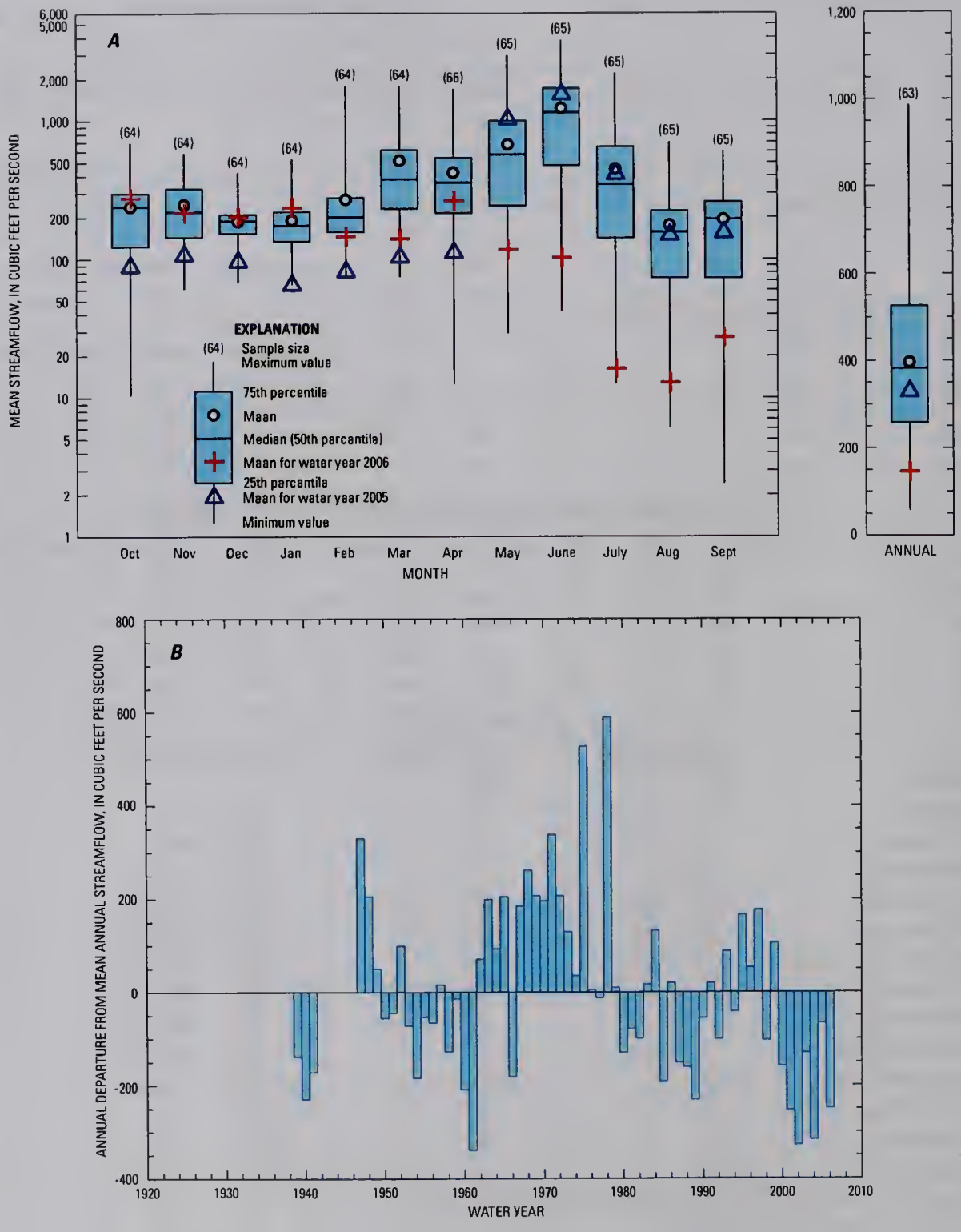


Figure 3. Streamflow data for the Tongue River at Miles City, Mont. (06308500), water years 1939–2006: *A*, Statistical distribution of monthly and annual streamflow; *B*, Annual departure from the mean annual streamflow.

06326500 Powder River near Locate, Mont.

LOCATION.--Lat 46°25'48", long 105°18'34" referenced to North American Datum of 1927, in SW ¼ SW ¼ SE ¼ sec. 23, T.8 N., R.51 E., Custer County, Hydrologic Unit 10090209, on left bank at downstream side of bridge on U.S. Highway 12, 0.1 mi west of Locate, and 25 mi east of Miles City, and at river mile 29.4.

DRAINAGE AREA.--13,068 mi².

PERIOD OF RECORD.--March 1938 to current year.

REVISED RECORDS.-- WSP 926: 1939. WSP 1309: 1938-39 (M). WSP 1729: Drainage area. WDR MT-04-1: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 2,384.79 ft (NGVD 29) (levels by U.S. Army Corps of Engineers). Prior to July 11, 1947, nonrecording gage located at bridge 1.5 mi upstream, and July 11, 1947 to Sept. 30, 1965, water-stage recorder located at site near upstream bridge at different elevation. Oct. 1, 1965 to Oct. 4, 1966, nonrecording gage, and Oct. 5, 1966 to Mar. 21, 1978, water-stage recorder located at present site and elevation. Mar. 22, 1978 to Apr. 23, 1981, water-stage recorder located 1.5 mi upstream at different elevation, Apr. 24 to Aug. 20, 1981, water-stage recorder located at present site and elevation, and Aug. 21, 1981 to Sept. 30, 1981, water-stage recorder located 1.5 mi upstream at different elevation. Oct. 1, 1981 to Apr. 5, 1995 water-stage recorder at site located 1.5 mi downstream at different elevation. Apr. 7, 1995 to present, water-stage recorders located on each bank and used depending on control conditions.

REMARKS.--Water-discharge records are fair except those for estimated daily discharges, which are poor. Some regulation occurs by three reservoirs in Wyoming with combined usable capacity of 36,800 acre-ft. Diversions for irrigation of about 101,800 acres upstream from station. U.S. Army Corps of Engineers satellite telemeter is located at the station.

Table 5. Daily mean discharge for Powder River near Locate, Mont., October 2005 to September 2006.

[Discharge is in cubic feet per second. Abbreviations: e, estimated; Max, maximum; Min, minimum; Acre-ft; acre-feet; WY, water year. Symbol: --, no data]

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	36	180	e70	e210	e180	e190	324	581	493	34	2.3	e0.00
2	36	185	e60	e210	e180	e500	332	552	443	33	3.5	e.00
3	42	181	e70	e210	e180	e1,000	345	510	401	28	3.4	e.00
4	53	179	e90	e210	e180	e1,000	421	486	326	30	3.0	e.05
5	152	182	e90	e190	e180	1,040	405	486	292	29	2.5	e.20
6	178	184	e90	e190	e180	1,440	595	389	239	24	1.8	e.05
7	293	187	e80	e190	e170	1,020	957	329	194	21	1.3	e.00
8	424	193	e90	e190	e180	880	865	319	190	18	1.7	e.00
9	657	188	e110	e200	e180	792	1,060	358	241	16	5.9	e.00
10	857	185	e120	e200	e180	702	712	474	171	15	2.0	e.00
11	560	189	e120	e200	e170	640	579	493	151	13	1.3	.44
12	358	211	e120	e200	e160	553	499	391	170	12	2.4	.96
13	268	209	e110	e200	e180	472	476	387	130	11	2.9	.28
14	234	210	e120	e200	e160	470	488	366	186	9.9	2.3	.00
15	260	188	e120	e200	e160	433	426	323	223	9.8	2.2	.00
16	254	193	e110	e210	e150	395	420	308	230	8.4	2.4	.36
17	242	206	e100	e210	e140	382	430	280	156	6.8	2.5	17
18	237	232	e80	e210	e150	377	951	284	120	6.2	5.3	50
19	247	259	e90	e210	e160	342	2,510	240	102	5.4	6.8	74
20	242	225	e100	e210	e170	313	3,120	208	90	5.1	3.4	50
21	220	202	e120	e210	e170	292	2,610	191	81	5.4	2.4	36
22	197	220	e130	e210	e170	303	2,250	177	77	5.1	2.1	82

Table 5. Daily mean discharge for Powder River near Locate, Mont., October 2005 to September 2006.—Continued

[Discharge is in cubic feet per second. Abbreviations: e, estimated; Max, maximum; Min, minimum; Acre-ft; acre-feet; WY, water year. Symbol: --, no data]

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
23	179	230	e130	e200	e170	325	1,900	510	74	4.7	1.7	240
24	177	230	e130	e180	e170	341	1,430	2,280	68	4.4	1.0	119
25	176	230	e130	e180	e160	325	1,130	1,110	61	4.0	0.48	80
26	183	e210	e140	e180	e170	311	866	671	48	3.7	0.54	52
27	185	e200	e170	e180	e170	293	747	545	48	3.4	0.39	37
28	176	e150	e210	e190	e170	302	704	435	43	3.0	0.22	37
29	172	e80	e210	e180	--	301	657	669	39	2.6	0.04	44
30	177	e70	e210	e180	--	315	614	712	34	2.6	0.02	38
31	179	--	e210	e180	--	318	--	588	--	2.2	0.17	--
Total	7,651	5,788	3,730	6,120	4,740	16,367	28,823	15,652	5,121	376.7	67.96	958.34
Mean	247	193	120	197	169	528	961	505	171	12.2	2.19	31.9
Max	857	259	210	210	180	1,440	3,120	2,280	493	34	6.8	240
Min	36	70	60	180	140	190	324	177	34	2.2	0.02	0.00
Acre-ft	15,180	11,480	7,400	12,140	9,400	32,460	57,170	31,050	10,160	747	135	1,900

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1939–2006, BY WATER YEAR (WY)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	246	216	148	143	418	1,191	728	1,123	1,556	546	205	163
Max	921	790	417	476	3,850	4,627	3,062	5,970	8,045	2,015	1,096	898
(WY)	(1941)	(1999)	(1942)	(1981)	(1943)	(1972)	(1965)	(1978)	(1944)	(1993)	(1941)	(1941)
Min	1.77	12.5	12.5	4.53	2.82	80.2	109	51.2	25.9	9.34	1.30	0.19
(WY)	(1961)	(1961)	(1961)	(1950)	(1950)	(1950)	(1961)	(2004)	(2004)	(2004)	(1988)	(1960)

SUMMARY STATISTICS

	Calendar Year 2005		Water Year 2006		Water Years 1939–2006	
Annual total	149,843		95,395.0			
Annual mean	411		261		557	
Highest annual mean					1,622	1944
Lowest annual mean					79.1	2004
Highest daily mean	3,390	Jun 28	3,120	Apr 20	26,000	Feb 19, 1943
Lowest daily mean	29	Aug 12	0	Sep 1	0	Jan 16, 1950
Annual seven-day minimum	36	Sep 22	.04	Aug 29	0	Jan 16, 1950
Maximum peak flow			4,240	Apr 19	[b]31,000	Feb 19, 1943
Maximum peak stage (ft)			5.29	Apr 19	[c]12.20	Mar 16, 1978
Instantaneous low flow			[a].00	Many days	[a].00	Many days
Annual runoff (acre-ft)	297,200		189,200		403,200	
10 percent exceeds	1,240		580		1,300	
50 percent exceeds	196		180		228	
90 percent exceeds	53		2.4		38	

[a] On many days in 1950, 1960-61, 1998, and 2006.

[b] Gage height, 11.23 feet, observed.

[c] Backwater from ice.

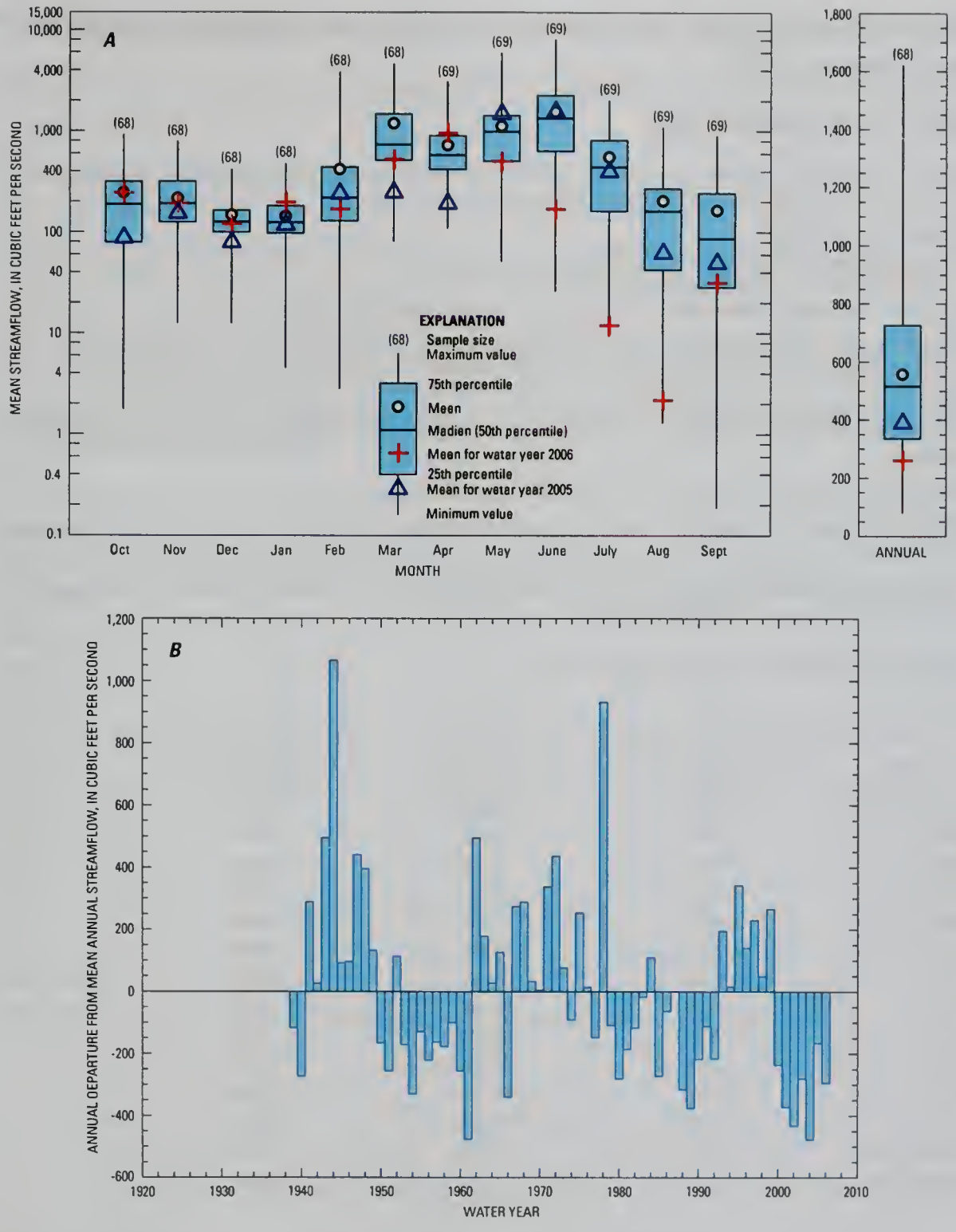


Figure 4. Streamflow data for the Powder River near Locate, Mont. (06326500), water years 1939–2006: *A*, Statistical distribution of monthly and annual streamflow; *B*, Annual departure from the mean annual streamflow.

Month-End Contents for Yellowstone River Compact Reservoirs[1] Completed after January 1, 1950

06258900 Boysen Reservoir, Wyo.

LOCATION.--Lat 43°25'00", long 108°10'37" (NAD 27), in NW¼ NW¼ sec. 16, T.5 N., R.6 E., Fremont County, Hydrologic Unit 10080005, at dam on Wind River and 13 mi north of Shoshoni, Wyo.

DRAINAGE AREA.--7,700 mi^2.

PERIOD OF RECORD.--October 1951 to current year (month-end contents only).

GAGE.--Water-stage recorder. Datum of gage is NGVD of 1929 (levels by Bureau of Reclamation).

REMARKS.--Reservoir is formed by rock-fill dam completed in October 1951. Storage began Oct. 11, 1951. Usable capacity is 701,500 acre-ft between elevation 4,657.00 ft, invert of penstock pipe, and 4,725.00 ft, top of spillway gate. Dead storage is 40,080 acre-ft below elevation 4,657.00 ft. Prior to Jan. 1, 1966, usable capacity was 757,800 acre-ft and dead storage was 62,000 acre-ft at same elevations. Between January 1966 and October 1996, usable capacity was 742,100 acre-ft and dead storage was 59,880 acre-ft, at same elevations. Crest of dam is at elevation 4,758.00 ft. Water used for irrigation, flood control, and power generation.

COOPERATION.--Elevations and capacity table furnished by Bureau of Reclamation.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily contents, 862,500 acre-ft, July 6, 7, 1967, elevation, 4,730.83 ft; minimum daily contents since normal use of water started, 191,900 acre-ft, Mar. 18, 19, 1956, elevation, 4,684.18 ft, capacity table then in use.

EXTREMES FOR CURRENT YEAR.--Maximum daily contents, 591,300 acre-ft, Oct. 6, 7, elevation, 4,719.03 ft; minimum daily contents, 402,500 acre-ft, Sept. 17, elevation, 4,706.22 ft.

Table 6. Month-end contents for Boysen Reservoir, Wyo.

[--, no data]

Date	Water-surface elevation, in feet	Usable contents, in acre-feet	Change in usable contents, in acre-feet
September 30, 2005	4,719.06	591,900	--
October 31	4,718.80	587,400	-4,500
November 30	4,718.27	578,400	-9,000
December 31	4,716.91	555,800	-22,600
January 31, 2006	4,716.16	543,800	-12,000
February 28	4,715.30	530,200	-13,600
March 31	4,714.42	516,700	-13,500
April 30	4,713.58	504,100	-12,600
May 31	4,713.91	509,000	4,900
June 30	4,713.58	504,100	-4,900
July 31	4,710.53	460,000	-44,100
August 31	4,707.30	416,400	-43,600
September 30, 2006	4,706.63	407,700	-8,700
2006 water year			**-184,200**

[1]Wyoming disagrees with the term "Compact reservoirs" as used throughout this annual report. Wyoming's acceptance of this annual report should not be construed as Wyoming's acceptance of the use of that term.

06260300 Anchor Reservoir, Wyo.

LOCATION.--Lat 43°39'50", long 108°49'27" (NAD 27), in sec. 26, T.43 N., R.100 W., Hot Springs County, Hydrologic Unit 10080007, at dam on South Fork Owl Creek, 2 mi downstream from Middle Fork, 3 mi southeast of Anchor, and 32 mi west of Thermopolis, Wyo.

DRAINAGE AREA.--131 mi^2.

PERIOD OF RECORD.--November 1960 to current year (month-end contents only).

GAGE.--Water-stage recorder. Datum of gage is NGVD of 1929 (Bureau of Reclamation benchmark).

REMARKS.--Reservoir is formed by concrete arch dam completed in 1960. Usable capacity, 17,410 acre-ft (revised) between elevation 6,343.75 ft, invert of river outlet, and 6,441.00 ft, spillway crest, including 68 acre-ft below elevation 6,343.75 ft. Prior to Oct. 1, 1971, usable capacity was 17,280 acre-ft, including 149 acre-ft below the invert. Water is used for irrigation of land in Owl Creek basin.

COOPERATION.--Elevations and capacity table furnished by Bureau of Reclamation.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily contents, 9,250 acre-ft, July 4, 1967, elevation, 6,418.52 ft; no usable contents on many days some years.

EXTREMES FOR CURRENT YEAR.--Maximum daily contents, 628 acre-ft, May 18, elevation, 6,465.00 ft; minimum daily contents, 212 acre-ft, many days, elevation, 6,353.00 ft.

Table 7. Month-end contents for Anchor Reservoir, Wyo.

[--, no data]

Date	Water-surface elevation, in feet	Usable contents, in acre-feet	Change in usable contents, in acre-feet
September 30, 2005	6,355.50	269	--
October 31	6,360.50	433	164
November 30	6,357.50	330	-103
December 31	6,356.50	299	-31
January 31, 2006	6,355.00	254	-45
February 28	6,358.00	345	91
March 31	6,358.00	345	0
April 30	6,355.30	263	-82
May 31	6,358.00	345	82
June 30	6,356.50	299	-46
July 31	6,353.00	212	-87
August 31	6,353.00	212	0
September 30, 2006	6,354.00	233	21
2006 water year			**-36**

06286400 Bighorn Lake near St. Xavier, Mont.

LOCATION.--Lat 45°18'27", long 107°57'26" (NAD 27), in SW¼SE¼ sec.18, T.6 S., R.30 E., Big Horn County, Hydrologic Unit 10080010, in block 13 of Yellowtail Dam on Bighorn River, 1.3 mi upstream from Grapevine Creek, 15.5 mi southwest of St. Xavier, Mont., and at river mile 86.6.

DRAINAGE AREA.--19,626 mi^2.

PERIOD OF RECORD.--November 1965 to current year (month-end contents only). Prior to October 1969, published as "Yellowtail Reservoir." Records of daily elevations and contents are on file at the USGS Montana Water Science Center office in Helena, Mont.

GAGE.--Water-stage recorder located in powerhouse control room. Datum of gage is 3,296.5 ft (levels by Bureau of Reclamation).

REMARKS.--Reservoir is formed from thin concrete-arch dam; construction began in 1961 and was completed in 1967. Storage began Nov. 3, 1965. Usable capacity is 1,312,000 acre-ft, between elevation 3,296.50 ft, river outlet invert, and 3,657.00 ft, top of flood control. Elevation of spillway crest is 3,593.00 ft. Normal maximum operating level is 1,097,000 acre-ft, between elevation, 3,640.00 ft and 3,657.00. Minimum operating level is 483,400 acre-ft, elevation, 3,547.00 ft. Dead storage is 16,010 acre-ft, below elevation 3,296.50 ft. Water is used for power production, flood control, irrigation, and recreation.

COOPERATION.--Elevations and capacity table furnished by Bureau of Reclamation.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 1,346,000 acre-ft, July 6, 1967, elevation, 3,656.43 ft; minimum contents since first filling, 591,400 acre-ft, Mar. 11, 2003, elevation, 3,572.81 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 1,009,000 acre-ft, Oct. 16, elevation, 3,636.25 ft; minimum contents, 720,000 acre-ft, Sept. 2, elevation, 3,598.43 ft.

Table 8. Month-end contents for Bighorn Lake, Mont.

[--, no data]

Date	Water-surface elevation, in feet	Usable contents, in acre-feet	Change in usable contents, in acre-feet
September 30, 2005	3,634.03	984,500	--
October 31	3,635.11	996,200	11,700
November 30	3,631.34	956,600	-39,600
December 31	3,626.41	910,400	-46,200
January 31, 2006	3,621.58	870,000	-40,400
February 28	3,616.26	829,700	-40,300
March 31	3,613.08	807,400	-22,300
April 30	3,606.89	768,100	-39,300
May 31	3,611.38	796,100	28,000
June 30	3,612.95	806,500	10,400
July 31	3,604.66	754,900	-51,600
August 31	3,598.50	720,400	-34,500
September 30, 2006	3,603.07	745,800	25,400
2006 water year			**-238,700**

Month-End Contents for Yellowstone River Compact Reservoirs[1] Existing on January 1, 1950

The extent, if any, to which the use of reservoirs in this section may be subject to Compact allocations was not determined. As a matter of hydrologic interest, the month-end usable contents, in acre-feet, of four reservoirs are given. The first three reservoirs are in the Bighorn River basin, Wyoming, and data on contents were furnished by the Bureau of Reclamation. The Tongue River Reservoir, Montana, is operated under the supervision of the Water Resources Division of the Montana Department of Natural Resources and Conservation, which furnished the water-level data and the reservoir-capacity table.

Table 9. Month-end contents for Yellowstone River Compact reservoirs[1] existing on January 1, 1950.

Date	Usable contents, in acre-feet[2]			
	06224500 Bull Lake	Pilot Butte Reservoir	06281500 Buffalo Bill Reservoir	0607000 Tongue River Reservoir
September 30, 2005	66,100	12,300	450,300	43,760
October 31	69,160	25,620	451,300	44,810
November 30	70,430	25,160	466,800	44,020
December 31	71,370	25,170	471,100	40,720
January 31, 2006	72,150	25,010	472,500	40,950
February 28	72,270	24,870	473,000	41,680
March 31	72,320	24,720	475,000	46,430
April 30	72,800	21,690	472,600	51,400
May 31	90,950	17,600	557,500	65,950
June 30	128,000	20,640	636,400	69,180
July 31	114,600	13,900	590,100	52,310
August 31	70,550	8,100	503,400	40,380
September 30, 2006	50,540	1,020	441,100	42,720
Change in contents during water year	**-15,560**	**-11,280**	**-9,200**	**-1,040**

[1]Wyoming disagrees with the term "Compact reservoirs" as used throughout this annual report. Wyoming's acceptance of this annual report should not be construed as Wyoming's acceptance of the use of that term.

[2]Pre-Compact water rights and post-Compact water rights for these reservoirs are presented in the table, "Water-year-end contents for Yellowstone River Compact reservoirs or lakes."

Water-Year-End Contents for Yellowstone River Compact Reservoirs[1] or Lakes

Table 10. Water-year-end contents for Yellowstone River Compact reservoirs[1] or lakes.

[Contents are in acre-feet. Reservoirs or lakes are listed in alphabetical order by drainage basin. Symbol: --, no data or not available]

Reservoir or lake name	Pre-compact 1950 water right	Post-compact 1950 water right	Usable capacity	Usable contents on Sept. 30, 2006	Usable contents on Sept. 30, 2005	Change in usable contents
Bighorn River basin						
(Lake) Adelaide Reservoir[2]	1,450	4,760	6,210	450	2,000	-1,550
Anchor Reservoir[3]	17,410	0	17,410	233	269	-36
Bighorn Lake[3]	--	1,116,000	1,312,000	745,800	984,500	-238,700
Boysen Reservoir[3]	701,500	0	701,500	407,700	591,900	-184,200
Buffalo Bill Reservoir[3]	456,600	190,000	646,600	441,100	450,300	-9,200
Bull Lake[3]	152,000	0	152,000	50,540	66,100	-15,560
Greybull Valley Reservoir[2]	0	33,170	33,170	322	8,000	-7,678
Pilot Butte Reservoir[3]	34,600	0	34,600	1,020	12,300	-11,280
Sunshine Reservoir[2]	52,990	0	52,990	5,960	24,000	-18,040
Lower Sunshine Reservoir[2]	42,640	42,300	84,940	720	21,000	-20,280
Powder River basin						
Cloud Peak Reservoir[2]	3,400	172	3,570	0	3,570	-3,570
Dull Knife Reservoir[2]	--	4,320	4,320	63	1,314	-1,251
Healy Reservoir[2]	--	5,140	5,140	1,336	4,652	-3,316
Kearney Reservoir[2]	1,850	4,470	6,320	1,085	2,641	-1,556
Lake DeSmet[2]	37,520	197,500	235,000	187,278	206,672	-19,394
Muddy Guard Reservoir[2]	--	2,340	2,340	500	492	8
Tie Hack Reservoir[2]	1,650	2,440	2,440	1,921	2,440	-519
Willow Park Reservoir[2]	4,460	--	4,460	451	2,896	-2,445
Tongue River basin						
Bighorn Reservoir[2]	2,750	1,880	4,630	584	670	-86
Cross Creek Reservoir[2]	--	798	798	309	474	-165
Dome Reservoir[2,4]	1,840	188	2,030	1,209	1,177	32
Granger Reservoir[2]	146	--	146	0	0	0
Last Chance Reservoir[2]	90	--	90	0	0	0
Martin Reservoir[2]	561	--	561	0	0	0
Park Reservoir[2]	7,350	3,020	10,360	3,088	4,684	-1,596
Sawmill Lakes Reservoir[2]	--	1,280	1,280	746	825	-79
Tongue River Reservoir[5]	79,070	--	79,070	42,720	43,760	-1,040
Twin Lakes Reservoir[2,6]	1,180	2,220	3,400	2,842	3,013	-171
Weston Reservoir[2]	370	--	370	0	0	0
Willits Reservoir[2]	79	--	79	0	0	0

[1]Wyoming disagrees with the term "Compact reservoirs" as used throughout this annual report. Wyoming's acceptance of this annual report should not be construed as Wyoming's acceptance of the use of that term.2 Reservoirs managed by the State of Wyoming.

[2]Reservoirs managed by the State of Wyoming.

[3]Reservoirs managed by Bureau of Reclamation.

[4]Data are combined contents of Dome Lake and Dome Lake Reservoir.

[5]Reservoir managed by State of Montana.

[6]Data are combined contents of Twin Lakes Number 1 and Twin Lakes Number 2.

RULES AND REGULATIONS FOR ADMINISTRATION OF THE YELLOWSTONE RIVER COMPACT

A compact, known as the Yellowstone River Compact, between the States of Wyoming, Montana, and North Dakota, having become effective on October 30, 1951, upon approval of the Congress of the United States, which apportions the waters of certain interstate tributaries of the Yellowstone River which are available after the appropriative rights existing in the States of Wyoming and Montana on January 1, 1950 are supplied, and after appropriative rights to the use of necessary supplemental water are also supplied as specified in the Compact, is administered under the following rules and regulations subject to the provisions for amendment revision or abrogation as provided herein.

Article I. Collection of Water Records

A. It shall be the joint and equal responsibility of the members of the States of Wyoming and Montana to collect, cause to be collected, or otherwise furnish records of tributary streamflow at the points of measurement specified in Article V (B) of the Compact, or as near thereto as is physically or economically feasible or justified.

1. Clarks Fork

The gaging station known as Clarks Fork near Silesia, Montana and located in NW1/4 SE1/4 sec. 1, T. 4 S., R. 23 E., shall be the point of measurement for the Clarks Fork.

2. Bighorn River (exclusive of Little Bighorn River)

The gaging station known as the Bighorn River above Tullock Creek, near Bighorn, Montana, and located in SE1/4 SE1/4 NE1/4 sec. 3, T. 4 N., R. 34 E., shall temporarily be the designated point of measurement on that stream. The flow of the Little Bighorn River as measured at the gaging station near Hardin, Montana, and located in SE1/4 NE1/4 NE1/4 sec. 19, T. 1 S., R. 34 E., shall be considered the point of measurement for that stream, except that if or when satisfactory records are not available, the records for the nearest upstream station with practical corrections for intervening inflow or diversion shall be used.

3. Tongue River

The gaging station known as the Tongue River at Miles City, Montana, and located in NE1/4 NE1/4 SE1/4 sec. 23, T. 7 N., R. 47 E., shall temporarily be the point of measurement for that stream.

4. Powder River

The gaging station known as the Powder River near Locate, Montana, and located in NW1/4 SW1/4 sec. 14, T. 8 N., R. 51 E., shall temporarily be the designated point of measurement for that stream.

B. Records of total annual diversion in acre-feet above the points of measurement designated in the Compact for irrigation, municipal, and industrial uses developed after January 1, 1950, shall be furnished by the members of the Commission for their respective States, at such time as the Commission deems necessary for interstate administration as provided by the terms of the Compact. Providing that if it be acceptable to the Commission, reasonable estimates thereof may be substituted.

C. Annual records of the net change in storage in all reservoirs, not excluded under Article V (E) of the Compact, above the point of measurement specified in the Compact and completed after January 1, 1950, and the annual net change in reservoirs existing prior to January 1, 1950, which is used for irrigation, municipal, and industrial purposes developed after January 1, 1950, shall be the primary responsibility of the member of the Commission in whose State such works are located; providing such data are not furnished by Federal agencies under the provisions of Article III (D) of the Compact, or collected by the Commission.

Article II. Office and Officers

A. The office of the Commission shall be located at the office of the Chairman of the Commission.

B. The Chairman of the Commission shall be the Federal representative as provided in the Compact.

C. The Secretary of the Commission shall be as provided for in Article III of these rules.

D. The credentials of each member of the Commission shall be placed on file in the office of the Commission.

Article III. Secretary

A. The Commission, subject to the approval of the Director of the United States Geological Survey, shall enter into cooperative agreements with the U.S. Geological Survey for such engineering and clerical services as may reasonably be necessary for the administration of the Compact. Said agreements shall provide that the Geological Survey shall:

1. Maintain and operate gaging stations at or near the points of measurement specified in Article V (A) of the Compact.

2. Assemble factual information on stream flow, diversion, and reservoir storage for the preparation of an annual report to the Governors of the signatory States.

3. Make such investigations and reports as may be requested by the Commission in aid of its administration of the Compact.

B. The Geological Survey shall act as Secretary to the Commission.

Article IV. Budget

A. At the annual meeting of each even-numbered year or prior thereto, the Commission shall adopt a budget for operation during the ensuing biennium beginning July first. Such budget shall set forth the total cost of construction, maintenance and operation of gaging stations, the cost of engineering and clerical aid, and other necessary expenses excepting the salaries and personal expenses of the Commissioners. On odd-numbered years revisions of the budget shall be considered.

B. It shall be the obligation of the Commissioners of the States of Montana and Wyoming to endeavor to secure from the Legislature of their respective States sufficient funds with which to meet the obligations of this Compact, except insofar as provided by the Federal government.

Article V. Meetings

An annual meeting of the Commission shall be held each November at some mutually agreeable point in the Yellowstone River Basin for consideration of the annual report for the water year ending the preceding September 30th, and for the transaction of such other business consistent with its authority; provided that by unanimous consent of the Commission the date and place of the annual meeting may be changed. Other meetings as may be deemed necessary shall be held at a time and place set by mutual agreement, for the transaction of any business consistent with its authority.

No action of the Commission shall be effective until approval by the Commissioners for the States of Wyoming and Montana.

Article VI. Amendments, Revisions and Abrogations.

The Rules and Regulations of the Commission may be amended or revised by a unanimous vote at any meeting of the Commission.

Gary Fritz
Commissioner for Montana

George L. Christopulos
Commissioner for Wyoming

ATTESTED:

L. Grady Moore
Federal Representative

Adopted November 17, 1953
Amended December 16, 1986

RULES FOR THE RESOLUTION OF DISPUTES OVER THE ADMINISTRATION OF THE YELLOWSTONE RIVER COMPACT

December 19, 1995

Section I. General Framework

According to Article III(F) of the Yellowstone River Compact,

"In case of the failure of the representatives of Wyoming and Montana to unanimously agree on any matter necessary to the proper administration of this compact, then the member selected by the director of the United States Geological Survey shall have the right to vote upon the matters in disagreement and such points of disagreement shall then be decided by a majority vote of the representatives of the states of Wyoming and Montana and said member selected by the director of the United States geological survey, each being entitled to one vote."

Section II. Purpose and Goal

A. The purpose of these rules is to clarify and more fully develop the dispute resolution process outlined in Section I.

B. The goal of the dispute resolution process outlined in these rules is to encourage joint problem solving and consensus building. It consists of three phases -- unassisted negotiation, facilitation, and voting.

C. Any agreement reached through this process is binding on Montana, Wyoming, and the United States Geological Survey (USGS).

D. Either state can initiate the dispute resolution process defined in Sections IV, V, and VI, and the other state is obligated to participate in good faith. The states agree that the issues pursued under this dispute resolution process shall be both substantive and require timely resolution.

Section III. Consensus

A. In the process of administering the Yellowstone River Compact, the representatives from Montana and Wyoming agree to seek consensus.

B. For purposes of this rule, consensus is defined as an agreement that is reached by identifying the interests of Montana and Wyoming and then building an integrative solution that maximizes the satisfaction of as many of the interests as possible. The process of seeking consensus does not involve voting, but a synthesis and blending of alternative solutions.

Section IV. Unassisted Negotiation

A. In all situations, the representatives from Montana and Wyoming shall first attempt to seek consensus through unassisted negotiation. The federal representative will not serve as chairperson in the unassisted negotiation process.

B. During a negotiation process, the representatives from Montana and Wyoming shall identify issues about which they differ, educate each other about their needs and interests, generate possible resolution options, and collaboratively seek a mutually acceptable solution.

C. To help facilitate negotiations, the representatives from Montana and Wyoming in cooperation with the USGS agree to share technical information and develop joint data bases. Other data sources may also be used.

D. The USGS shall serve as technical advisor in the two-state negotiations.

Section V. Facilitation

A. If the representatives from Montana and Wyoming are not able to reach consensus through unassisted negotiation, they shall each identify, articulate, and exchange, in writing, the unresolved issues.

B. The representatives from Montana and Wyoming shall then jointly appoint a facilitator to assist in resolving the outstanding dispute. If the representatives from Montana and Wyoming cannot identify a mutually acceptable facilitator, the representative appointed by the USGS shall appoint a facilitator.

C. A facilitator, for purposes of this rule, is defined as a neutral third party that shall help the representatives from Montana and Wyoming communicate, negotiate, and reach agreements voluntarily. The facilitator is not empowered to vote or render a decision.

D. The facilitator shall assist the representatives from Montana and Wyoming in developing appropriate ground rules for each facilitated session including establishing a deadline for completion of the facilitation process, setting an appropriate agenda, identifying issues, collecting and analyzing technical information, developing options, packaging agreements, and preparing a written agreement. The facilitator reserves the right to meet privately with each representative during the facilitation process.

Section VI. Voting

A. If, and only if, the representatives from Montana and Wyoming are unable to reach consensus with the assistance of a facilitator, then a dispute may be settled by voting.

B. The representatives from Montana and Wyoming, along with the representative appointed by the director of the USGS, are each entitled to one vote.

C. If the USGS representative does not vote in accordance with Article III, then the director of the USGS will select, with concurrence from Wyoming and Montana, a neutral third party to vote.

D. If the representative appointed by the director of the USGS is not involved in the steps outlined in Sections IV and V, each state shall have the opportunity to present appropriate information to that representative. This information may be presented through both oral presentations and written documents. All information will be shared with the other state.

   The representative of the USGS may also consult the facilitator referenced in Section V in an attempt to resolve any disputes.

E. The USGS shall pay the expenses of the representative appointed by the director of the USGS.

F. Points of disagreement shall be resolved by a majority vote.

Section VII. Funding

A. The USGS will pay one-half and the states of Montana and Wyoming shall each pay one-quarter of the expenses of the facilitator, which shall not exceed $10,000, unless agreed to by both states and the USGS.

Section VIII. Amendments

A. These rules may be amended or revised by a unanimous vote of the Commission.

Section IX. Execution

These rules for the resolution of disputes over the administration of the Yellowstone River Compact are hereby executed on the date indicated below.

Gary Fritz
Commissioner for Montana

Gordon W. Fassett
Commissioner for Wyoming

William F. Horak
Federal Representative

July 22, 1996
Date

RULES FOR ADJUDICATING WATER RIGHTS ON INTERSTATE DITCHES

Article I. Purpose

The purpose of this rule is to determine and adjudicate, in accordance with the laws of Montana and Wyoming, those pre-Compact (January 1, 1950) water rights diverting from the Powder, Tongue, Bighorn and Clarks Fork Rivers and their tributaries where the point of diversion is in one State and the place of use is in the other State which have not yet been adjudicated.

Article II. Authority

In accordance with the Yellowstone River Compact, the State of Montana and the State of Wyoming, being moved by consideration of interstate comity, desire to remove all causes of present and future controversy between the States and between persons in one State and persons in another State with respect to these interstate ditches. Article III (E) of the Compact provides the Yellowstone River Compact Commission with the authority "...to formulate rules and regulations and to perform any act which they may find necessary to carry out the provisions of this Compact...."

Article III. Definitions

The terms defined in the Yellowstone River Compact apply as well as the following definitions:

1. "Acre-feet" means the volume of water that would cover 1 acre of land to a depth of 1 foot.

2. "Cfs" means a flow of water equivalent to a volume of 1 cubic foot that passes a point in 1 second of time and is equal to 40 miners inches in Montana.

3. "Interstate Ditches" shall include ditches and canals which convey waters of the Bighorn, Tongue, Powder, and Clarks Fork Rivers and their tributaries across the Wyoming-Montana State line where the water is diverted in one State and the place of use is in the other State.

4. "Department of Natural Resources and Conservation," hereafter called the "Department," means the administrative agency and Department of the Executive Branch of the Government of Montana created under Title II, Chapter 15, MCA which has the responsibility for water administration in that State.

5. "Water Court" means a Montana District Court presided over by a water judge, as provided for in Title III, Chapter 7, MCA.

6. "State Engineer" shall be the current holder of the position created by the Wyoming Constitution as Chief Water Administration Official for the State of Wyoming.

7. "Board of Control," hereinafter called the "Board," is defined as the constitutionally created water management agency in Wyoming composed of the four Water Division Superintendents and the State Engineer.

8. "Superintendent" is the member of the Board who is the water administration official for the Water Division where the interstate ditch is located. (The two Water Divisions in the Yellowstone River drainage are Water Division Numbers Two and Three.)

9. "Date of Priority" shall mean the earliest date of actual beneficial use of water, unless evidence and circumstances pertaining to a particular claim establish an earlier date.

10. "Point of Diversion" is defined to be the legal land description by legal subdivision, section, township, and range of the location of the diversion structure for an interstate ditch from a natural stream channel.

11. "Place of Use" is defined to be the legal land description (legal subdivision, section, township, and range) of the lands irrigated by an interstate ditch.

12. "Person" is defined as an individual, a partnership, a corporation, a municipality or any other legal entity, public or private.

13. "Claimant" is defined as any person claiming the use of water from an interstate ditch as herein defined.

Article IV. Procedures

The procedures for determining and adjudicating water rights associated with interstate ditches shall be categorized as follows: (A) Where the point of diversion is in Wyoming and place of use in Montana, and (B) Where the point of diversion is in Montana and place of use in Wyoming.

A. Wyoming Procedure

1. The Yellowstone River Compact Commission will provide a claim form to be completed by the claimant that will describe the location and point of diversion and land being irrigated, the priority date claimed, method of irrigation and such other information required to describe the claim. (A sample form for this purpose is attached.)

2. The Yellowstone River Compact Commission will send the claim form to water users on the interstate ditches.

3. Water users will complete the claim form and file it with the Yellowstone Compact Commission, which, when found to be correct and complete, will be forwarded to the Board for verification.

4. Upon receipt of the form, the Board shall forward it to the appropriate Superintendent, who, in cooperation with the Department, will validate the information including the use that has been made of the water, the number of acres and location of lands being irrigated, the priority date, and all other relevant information. The Superintendent and the Department will utilize aerial photography and other information to have prepared a reproducible map showing the location of the ditch system, lands irrigated, point of diversion, etc., of the claim.

5. After the validation procedure, the Superintendent will hold a hearing, after appropriate notice and advertisement, at which time the claimant shall describe, in detail, the use that has been made of the water and the lands that are being irrigated, establish a priority date, etc. Costs incurred in advertising shall be paid by the claimant. If a single hearing is held to consider several claims, the costs of advertising shall be shared equally among the claimants. Anyone who opposes the claim shall appear and state the reasons, if any, for opposition to the claim. If there is no opposition to the claim, cost incurred in holding the hearing shall be paid by the claimant. If protestants do appear and oppose the claim, hearing costs will be paid 50 percent by the claimant and 50 percent by the protestant, or if there is more than one protestant, the remaining 50 percent shall be shared equally among the protestants.

6. At the conclusion of the hearing, the Superintendent shall forward the record to the Yellowstone River Compact Commission with his findings and recommendations. The Yellowstone River Compact Commission will make the

determination of the amount of the right, the location, and the priority date, and then send the record to the Board.

7. The Board shall review the record and integrate it into its water rights system. Upon entry of the record by the Board, the information shall be forwarded to the Department and the Chairman of the Yellowstone River Compact Commission.

8. Upon the entry of the right into the Board's records, it will have the following attributes:

   a. The right will be a Wyoming water right with a priority date as established by this procedure.

   b. The amount of the right will be determined as provided by Wyoming law.

B. Montana Procedure

1. The Yellowstone River Compact Commission will provide a claim form to be completed by the claimant that will describe the location and point of diversion and land being irrigated, the priority date claimed, method of irrigation and such other information required to describe the claim.

2. The Commission will send the claim form to water users on the interstate ditches.

3. Water users will complete the claim form and file it with the Yellowstone River Compact Commission, which, when found to be correct and complete, will be forwarded to the Department for verification.

4. Upon receipt of the form, the Department, in cooperation with the Wyoming State Engineer's Office, will validate the information, including the use that has been made of the water, the number of acres and location of lands being irrigated, the priority date, and all other relevant information. The appropriate Superintendent and the Department will utilize aerial photographs and other information to have prepared a reproducible map showing the location of the ditch system, land irrigated, point of diversion, etc., of the claim.

5. The Department will then forward the record to the Yellowstone River Compact Commission with its findings and recommendations. Upon approval by the Commission, the record shall be submitted to the Montana Water Court for adjudication. A duplicate record will be forwarded to the Wyoming State Engineer's Office, the Board, and the Chairman of the Yellowstone River Compact Commission upon adjudication.

6. Upon adjudication of the right by the Montana Water Court, it will have the following attributes:

   a) The right will be a Montana water right with a priority date as established by this procedure.

   b) The amount of the right will be determined as provided by Montana law.

Article V. Exclusions

A. These rules recognize the limitation in Article VI of the Yellowstone River Compact regarding Indian water rights.

B. These rules shall not be construed to determine or interpret the rights of the States of Wyoming and Montana to the waters of the Little Bighorn River.

Article VI. Claim Form Submission Period

All claims must be submitted to the Yellowstone River Compact Commission, c/o District Chief, United States Geological Survey, 821 E. Interstate, Bismarck, ND 58501, within 90 calendar days after the claimant has received the claim form from the Commission. The blank claim form will be sent certified mail to the water user and the submission period of 90 calendar days will begin with the next day following receipt of the form, as evidenced by the certified mail receipt card. For good cause shown in writing, an extension of time beyond the 90 days for submittal may be obtained from the Commission.

YELLOWSTONE RIVER COMPACT COMMISSION

WYOMING

GORDON W. FASSETT
STATE ENGINEER
HERSCHLER BUILDING
4TH FLOOR EAST
CHEYENNE, WYOMING 82002
(307) 7777354

UNITED STATES

WILLIAM F. HORAK
CHAIRMAN
U.S. GEOLOGICAL SURVEY
821 E. INTERSTATE AVENUE
BISMARCK, NORTH DAKOTA 58501
(701) 250-4601

MONTANA

GARY FRITZ
ADMINISTRATOR, WATER RESOURCES DIVISION
DEPT. OF NATURAL RESOURCES & CONSERVATION
1520 EAST SIXTH AVENUE
HELENA, MONTANA 59620
(406) 444-6603

YELLOWSTONE RIVER COMPACT COMMISSION

CLAIM FORM FOR INTERSTATE DITCHES

1. Name of ditch or canal: _____

2. Source of water supply: _____

   Tributary of _____

3. Name of claimant: _____

   Address _____

   City _____ State _____Zip Code _____

   Home Phone No. _____ Business Phone No. _____

4. Person completing form: _____

   Address _____

   City _____ State _____Zip Code _____

   Home Phone No. _____ Business Phone No. _____

5. Method of irrigation: _____

6. Point of diversion: County _____ State _____

   Headgate located in the ___¼ ___¼, Section ____, T.___R.____

   (a) Description of headgate: (Briefly describe the materials and general features, date constructed or last known work, general condition.) _____

   _____

   _____

(b) Describe water measuring device: _____

_____

_____

(c) If the point of diversion is in Montana:

1. What flow rate has been claimed?

_____ ☐ cubic feet per second

☐ gallons per minute

☐ miner's inches

2. What volume of water has been claimed?

_____ acre-feet

7. Dimensions of ditch at headgate: Width at top (at waterline) _____ feet; width at bottom _____ feet; side slopes (vertical:horizontal) _____:_____; depth of water _____ feet; grade _____ feet per mile.

8. Place of use and acres irrigated: County_____ State ____ Give legal subdivisions of land owned by you on which water is being used (acres claimed): An example field is shown in the first line.

T.	R.	SEC.	NE¼				NW¼				SW¼				SE¼				TOTAL
			NE¼	NW¼	SW¼	SE¼	NE¼	MW¼	SW¼	SE¼	NE¼	NW¼	SW¼	SE¼	NE¼	NW¼	SW¼	SE¼	
58N	95W	18			25.1											10.2			35.3

9. Describe any additional uses of water claimed from the ditch: _____

10. Date of first beneficial use of water (priority date) on lands described above for _____ Ditch is_____ (mo/day/yr) and shall be the same for all lands claimed on this form.

11. Has irrigation water been diverted onto all lands shown in the above tabulation each year since completion of works?__ If not, state exceptions and reasons therefore: _____

_____

_____

12. Attach documentary evidence or affidavits showing your ownership or control of the above lands, as well as the historic use of water on these lands. _____

_____

_____

13. What permit or claim numbers have been assigned to known records filed with either the Wyoming State Engineer's Office or the Montana Department (DNRC) for irrigating the above lands? _____

_____

_____

14. Have personnel in the Wyoming State Engineer's Office or the Montana Department (DNRC) been contacted to obtain the information given in No. 13? ( ) Yes ( ) No

15. Describe any flumes or pipelines in the ditch conveyance system:_____

_____

_____

16. Describe ordinary annual period of use: _____ to _____
(mo/day) (mo/day)

_____.

17. Attach copies of aerial photographs, U. S. Geological Survey maps or other such documents showing the ditch and lands irrigated that give evidence to this claim and may be useful to the Commission.

* * * * * * * * * *

State of _____)
) SS
State of _____)

I, _____, having been duly sworn, depose and say that I, being of legal age and being the claimant of this claim for a water right, and the person whose name is signed to it as the claimant, know the contents of this claim and the matters and things stated there are correct.

_____

_____

Subscribed and sworn before me, this ____day of _____, 19__.

_____
Notary Public

Residing at: _____

My commission expires: _____

Conversion Table

Multiply	By	To obtain
	Length	
foot (ft)	0.3048	meter (m)
mile (mi)	1.609	kilometer (km)
	Area	
acre	4,047	square meter (m^2)
acre	0.4047	hectare (ha)[1]
acre	0.4047	square hectometer (hm^2)
acre	0.004047	square kilometer (km^2)
square mile (mi^2)	2.590	square kilometer (km^2)
	Volume	
cubic foot per second-/day (ft^3/s-day)	2,447	cubic meter (m^3)
cubic foot per second-/day (ft^3/s-day)	0.002447	cubic hectometer (hm^3)
cubic foot (ft^3)	0.02832	cubic meter (m^3)
acre-foot (acre-ft)	1,233	cubic meter (m^3)
acre-foot (acre-ft)	0.001233	cubic hectometer (hm^3)
acre-foot (acre-ft)	0.000001233	cubic kilometer (km^3)
	Flow rate	
cubic foot per second (ft^3/s)	28.32	liter per second (L/s)
cubic foot per second (ft^3/s)	28.32	cubic decimeter per second (dm^3/s)
cubic foot per second (ft^3/s)	0.02832	cubic meter per second (m^3/s)
acre-foot per year (acre-ft/yr)	1,233	cubic meter per year (m^3/yr)
acre-foot per year (acre-ft/yr)	0.001233	cubic hectometer per year (hm^3/yr)
acre-foot per year (acre-ft/yr)	0.000001233	cubic kilometer per year (km^3/yr)

[1]The unit hectare is used with the International System of Units (SI) to satisfy the needs of some specialized scientific interests. See: Taylor, B.E., ed., 2001, The International System of Units (SI): U.S. Department of Commerce, NIST Special Publication 330, 68 p., available online at *http://physics/nist/gov/Pubs/pdf.html*

LOCATION MAP

YELLOWSTONE RIVER COMPACT COMMISSION

YELLOWSTONE RIVER BASIN

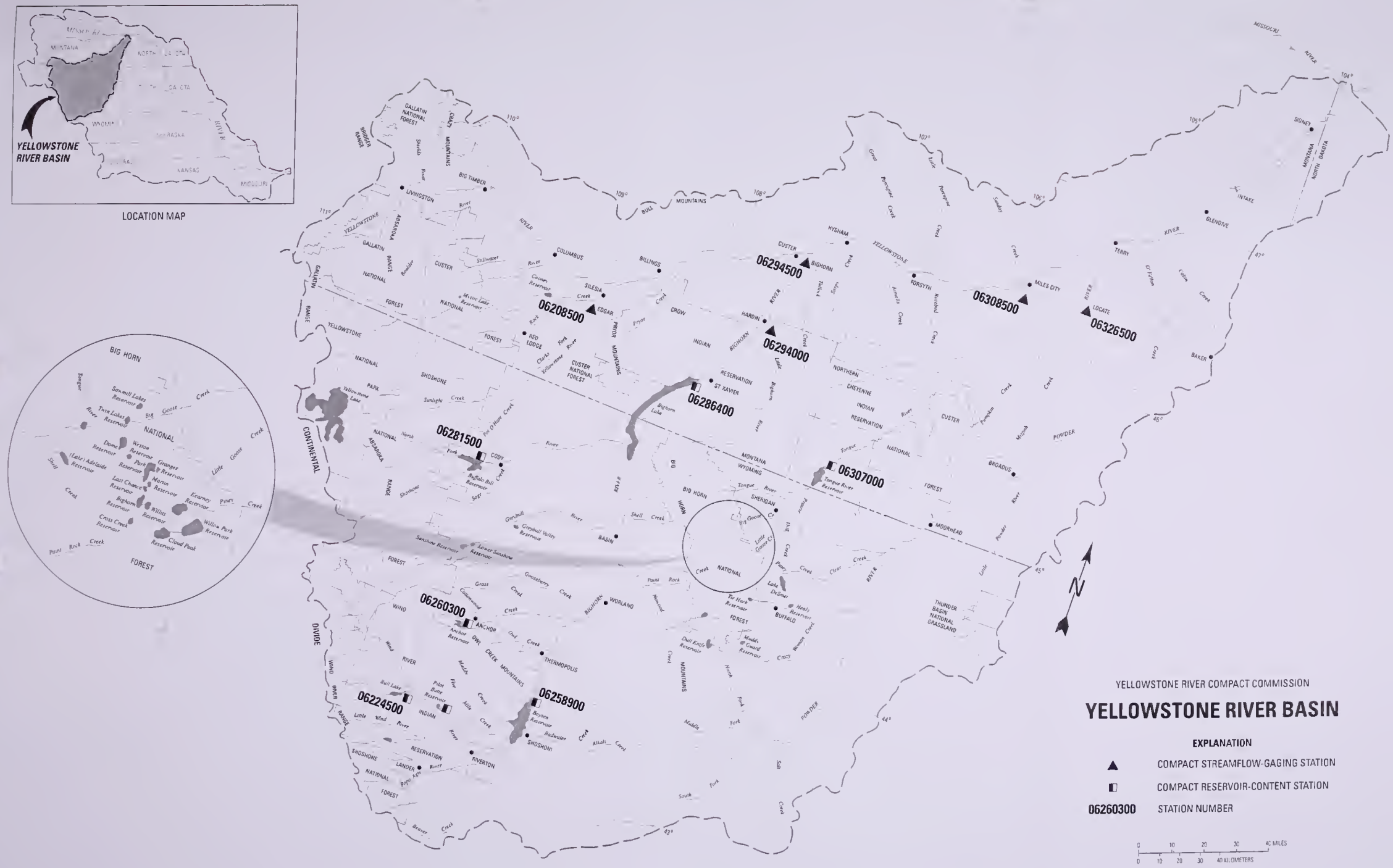
EXPLANATION

▲ COMPACT STREAMFLOW-GAGING STATION

◧ COMPACT RESERVOIR-CONTENT STATION

06260300 STATION NUMBER

0 10 20 30 40 MILES
0 10 20 30 40 KILOMETERS



MAP SHOWING LOCATIONS OF YELLOWSTONE RIVER COMPACT STREAMFLOW-GAGING AND RESERVOIR-CONTENT STATIONS